



NUREG-1432
Volume 1
Revision 5.0

Standard Technical Specifications

Combustion Engineering Plants

Revision 5.0

Volume 1, Specifications

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Standard Technical Specifications

Combustion Engineering Plants

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Volume 1, Specifications

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ABSTRACT

This NUREG contains the improved Standard Technical Specifications (STS) for Combustion Engineering (CE) plants. The changes reflected in Revision 5 result from the experience gained from plant operation using the improved STS and extensive public technical meetings and discussions among the Nuclear Regulatory Commission (NRC) staff and various nuclear power plant licensees and the Nuclear Steam Supply System (NSSS) Owners Groups.

The improved STS were developed based on the criteria in the Final Commission Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, dated July 22, 1993 (58 FR 39132), which was subsequently codified by changes to Section 36 of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR 50.36) (60 FR 36953). Licensees are encouraged to upgrade their technical specifications consistent with those criteria and conforming, to the practical extent, to Revision 5 to the improved STS. The Commission continues to place the highest priority on requests for complete conversions to the improved STS. Licensees adopting portions of the improved STS to existing technical specifications should adopt all related requirements, as applicable, to achieve a high degree of standardization and consistency.

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1.0 USE AND APPLICATION

1.1 Definitions

-----NOTE-----

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

<u>Term</u>	<u>Definition</u>
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
AXIAL SHAPE INDEX (ASI)	ASI shall be the power generated in the lower half of the core less the power generated in the upper half of the core, divided by the sum of the power generated in the lower and upper halves of the core. $ASI = (LOWER - UPPER) / (LOWER + UPPER)$
AZIMUTHAL POWER TILT (T _q) - Digital	AZIMUTHAL POWER TILT shall be the power asymmetry between azimuthally symmetric fuel assemblies.
AZIMUTHAL POWER TILT (T _q) - Analog	AZIMUTHAL POWER TILT shall be the maximum of the difference between the power generated in any core quadrant (upper or lower) (P _{quad}) and the average power of all quadrants (P _{avg}) in that half (upper or lower) of the core, divided by the average power of all quadrants in that half (upper or lower) of the core. $T_q = \text{Max } (P_{\text{quad}} - P_{\text{avg}}) / P_{\text{avg}} $
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an in-place qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps[, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step].

1.1 Definitions

CHANNEL CHECK A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST A CHANNEL FUNCTIONAL TEST shall be:

- a. Analog and bistable channels - the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY, and
- b. Digital computer channels - the use of diagnostic programs to test digital computer hardware and the injection of simulated process data into the channel to verify OPERABILITY of all devices in the channel required for channel OPERABILITY.

The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps[, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step].

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

DOSE EQUIVALENT I-131 DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries per gram) that alone would produce the same dose when inhaled as the combined activities of iodine isotopes I-131, I-132, I-133, I-134, and I-135 actually present. The determination of DOSE EQUIVALENT I-131 shall be performed using

----- Reviewer's Note -----
The first set of thyroid dose conversion factors shall be used for plants licensed to 10 CFR 100.11. The following Committed Dose Equivalent (CDE) or Committed Effective Dose Equivalent (CEDE) conversion factors shall be used for plants licensed to 10 CFR 50.67.

1.1 Definitions

DOSE EQUIVALENT I-131 (continued)

[thyroid dose conversion factors from:

- a. Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites," or
- b. Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977, or
- c. ICRP-30, 1979, Supplement to Part 1, page 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity," or
- d. Table 2.1 of EPA Federal Guidance Report No. 11, 1988, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion."

OR

Committed Dose Equivalent (CDE) or Committed Effective Dose Equivalent (CEDE) dose conversion factors from Table 2.1 of EPA Federal Guidance Report No. 11.]

DOSE EQUIVALENT XE-133

DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides [Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138] actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using [effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil" or the average gamma disintegration energies as provided in ICRP Publication 38, "Radionuclide Transformations" or similar source].

ENGINEERED SAFETY
FEATURE (ESF) RESPONSE
TIME

The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF 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

1.1 Definitions

ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME (continued)

applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC, or the components have been evaluated in accordance with an NRC approved methodology.

INSERVICE TESTING PROGRAM

The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

LEAKAGE

LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;
2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known to not interfere with the operation of leakage detection systems; or
3. Reactor Coolant System (RCS) LEAKAGE through a steam generator to the Secondary System (primary to secondary LEAKAGE);

b. Unidentified LEAKAGE

All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE; and

c. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE) through a fault in an RCS component body, pipe wall, or vessel wall. LEAKAGE past seals, packing, and gaskets is not pressure boundary LEAKAGE.

1.1 Definitions

MODE	A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, 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 or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	<p>PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation.</p> <p>These tests are:</p> <ol style="list-style-type: none">Described in Chapter [14, Initial Test Program] of the FSAR,Authorized under the provisions of 10 CFR 50.59, orOtherwise approved by the Nuclear Regulatory Commission.
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.4.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of [3410] MWt.

1.1 Definitions

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 electrical power to the CEAs drive mechanism is interrupted. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC, or the components have been evaluated in accordance with an NRC approved methodology.
SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming: a. All full length CEAs (shutdown and regulating) are fully inserted except for the single CEA of highest reactivity worth, which is assumed to be fully withdrawn. However, with all CEAs verified fully inserted by two independent means, it is not necessary to account for a stuck CEA in the SDM calculation. With any CEAs not capable of being fully inserted, the reactivity worth of these CEAs must be accounted for in the determination of SDM, and [b. There is no change in part length CEA position.]
[STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during <i>n</i> Surveillance Frequency intervals, where <i>n</i> 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.

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTIVITY CONDITION (k_{eff})	% RATED THERMAL POWER ^(a)	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	≥ 0.99	> 5	NA
2	Startup	≥ 0.99	≤ 5	NA
3	Hot Standby	< 0.99	NA	$\geq [350]$
4	Hot Shutdown ^(b)	< 0.99	NA	$[350] > T_{avg} > [200]$
5	Cold Shutdown ^(b)	< 0.99	NA	$\leq [200]$
6	Refueling ^(c)	NA	NA	NA

(a) Excluding decay heat.

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

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

1.0 USE AND APPLICATION

1.2 Logical Connectors

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

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Verify . . . <u>AND</u> A.2 Restore . . .	

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

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

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

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

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
DESCRIPTION	<p>The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO.</p> <p>Unless otherwise specified, the Completion Time begins when a senior licensed operator on the operating shift crew with responsibility for plant operations makes the determination that an LCO is not met and an ACTIONS Condition is entered. The "otherwise specified" exceptions are varied, such as a Required Action Note or Surveillance Requirement Note that provides an alternative time to perform specific tasks, such as testing, without starting the Completion Time. While utilizing the Note, should a Condition be applicable for any reason not addressed by the Note, the Completion Time begins. Should the time allowance in the Note be exceeded, the Completion Time begins at that point. The exceptions may also be incorporated into the Completion Time. For example, LCO 3.8.1, "AC Sources - Operating," Required Action B.2, requires declaring required feature(s) supported by an inoperable diesel generator, inoperable when the redundant required feature(s) are inoperable. The Completion Time states, "4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)." In this case the Completion Time does not begin until the conditions in the Completion Time are satisfied.</p> <p>Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.</p> <p>If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate</p>

1.3 Completion Times

DESCRIPTION (continued)

Completion Times are tracked for each Condition starting from the discovery of the situation that required entry into the Condition, unless otherwise specified.

Once a Condition has been entered, subsequent trains, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition, unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition, unless otherwise specified.

However, when a subsequent train, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:

- a. Must exist concurrent with the first inoperability and
- b. Must remain inoperable or not within limits after the first inoperability is resolved.

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

- a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours or
- b. The stated Completion Time as measured from discovery of the subsequent inoperability.

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

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ."

1.3 Completion Times

EXAMPLES

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

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

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

The Required Actions of Condition B are to be in MODE 3 within 6 hours AND in MODE 5 within 36 hours. A total of 6 hours is allowed for reaching MODE 3 and a total of 36 hours (not 42 hours) is allowed for reaching MODE 5 from the time that Condition B was entered. If MODE 3 is reached within 3 hours, the time allowed for reaching MODE 5 is the next 33 hours because the total time allowed for reaching MODE 5 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 5 is the next 36 hours.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable.	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

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

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X train inoperable.	A.1 Restore Function X train to OPERABLE status.	7 days
B. One Function Y train inoperable.	B.1 Restore Function Y train to OPERABLE status.	72 hours
C. One Function X train inoperable. <u>AND</u> One Function Y train inoperable.	C.1 Restore Function X train to OPERABLE status. <u>OR</u> C.2 Restore Function Y train to OPERABLE status.	72 hours 72 hours

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

1.3 Completion Times

EXAMPLES (continued)

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

It is possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. However, doing so would be inconsistent with the basis of the Completion Times. Therefore, there shall be administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO. These administrative controls shall ensure that the Completion Times for those Conditions are not inappropriately extended.

EXAMPLE 1.3-4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

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

1.3 Completion Times

EXAMPLES (continued)

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

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

EXAMPLE 1.3-5

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

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

1.3 Completion Times

EXAMPLES (continued)

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

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

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

EXAMPLE 1.3-6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x.	Once per 8 hours
	<u>OR</u> A.2 Reduce THERMAL POWER to $\leq 50\%$ RTP.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

1.3 Completion Times

EXAMPLES (continued)

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

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

EXAMPLE 1.3-7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u> A.2 Restore subsystem to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

1.3 Completion Times

EXAMPLES (continued)

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

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

----- Reviewer's Note -----
 Example 1.3-8 is only applicable to plants that have adopted the Risk Informed Completion Time Program.

EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

1.3 Completion Times

EXAMPLES (continued)

When a subsystem is declared inoperable, Condition A is entered. The 7 day Completion Time may be applied as discussed in Example 1.3-2. However, the licensee may elect to apply the Risk Informed Completion Time Program which permits calculation of a Risk Informed Completion Time (RICT) that may be used to complete the Required Action beyond the 7 day Completion Time. The RICT cannot exceed 30 days. After the 7 day Completion Time has expired, the subsystem must be restored to OPERABLE status within the RICT or Condition B must also be entered.

The Risk Informed Completion Time Program requires recalculation of the RICT to reflect changing plant conditions. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

If the 7 day Completion Time clock of Condition A has expired and subsequent changes in plant condition result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start.

If the RICT expires or is recalculated to be less than the elapsed time since the Condition was entered and the inoperable subsystem has not been restored to OPERABLE status, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition B is entered, Condition A is exited, and therefore, the Required Actions of Condition B may be terminated.]

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

1.4 Frequency

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

1.4 Frequency

DESCRIPTION (continued)

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

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

EXAMPLES

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

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

If the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, then SR 3.0.4 becomes applicable. The Surveillance must be performed within the Frequency requirements of SR 3.0.2, as modified by SR 3.0.3, prior to entry into the MODE or other specified condition or the LCO is considered not met (in accordance with SR 3.0.1) and LCO 3.0.4 becomes applicable.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

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

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

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

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

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

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval (plus the extension allowed by SR 3.0.2), there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-5

SURVEILLANCE REQUIREMENTS

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

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

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-6

SURVEILLANCE REQUIREMENTS

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

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

2.0 SAFETY LIMITS (SLs) (Analog)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 In MODES 1 and 2, the combination of THERMAL POWER, pressurizer pressure, and the highest operating loop cold leg coolant temperature shall not exceed the limits shown in Figure 2.1.1-1.

2.1.1.2 In MODES 1 and 2, peak fuel centerline temperature shall be maintained at < [5080]°F, decreasing by [58°F per 10,000 MWD/MTU] and adjusted for burnable poison per [CENPD-275-P, Revision 1-P-A or CENPD-382-P-A].

2.1.2 Reactor Coolant System Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained \leq [2750] psia.

2.2 SAFETY LIMIT VIOLATIONS

2.2.1 If SL 2.1.1 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

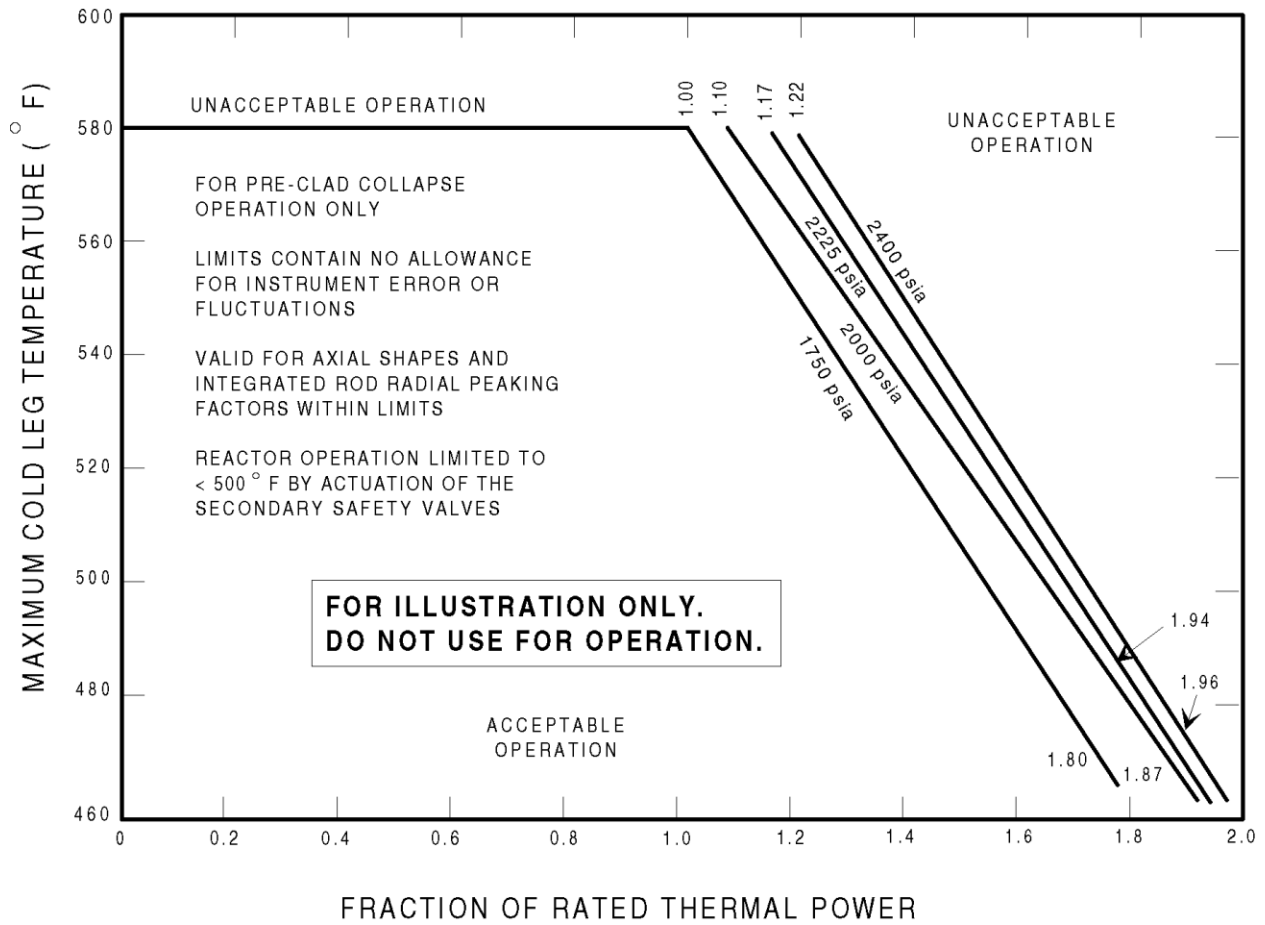


Figure 2.1.1-1 (page 1 of 1)
Reactor Core Thermal Margin Safety Limit

2.0 SAFETY LIMITS (SLs) (Digital)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 In MODES 1 and 2, departure from nucleate boiling ratio (DNBR) shall be maintained at $\geq [1.19]$.

2.1.1.2 In MODES 1 and 2, the peak fuel centerline temperature shall be maintained at $< [5080]^{\circ}\text{F}$, decreasing by $[58^{\circ}\text{F}$ per 10,000 MWD/MTU] and adjusted for burnable poison per [CENPD-275-P, Revision 1-P-A or CENPD-382-P-A].

2.1.2 Reactor Coolant System Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained $\leq [2750]$ psia.

2.2 SAFETY LIMIT VIOLATIONS

2.2.1 If SL 2.1.1.1 or SL 2.1.1.2 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, LCO 3.0.8, and LCO 3.0.9.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

- a. MODE 3 within 7 hours,
- b. [MODE 4 within 13] hours, and
- c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

LCO 3.0.4 When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

- a. 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;
 - b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate (exceptions to this Specification are stated in the individual Specifications); or
 - c. When an allowance is stated in the individual value, parameter, or other Specification.
-

3.0 LCO Applicability

LCO 3.0.4 (continued)

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

LCO 3.0.5 Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6 When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.14, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

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

LCO 3.0.7 Special test exception (STE) LCOs [in each applicable LCO section] allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with STE LCOs is optional. When an STE LCO is desired to be met but is not met, the ACTIONS of the STE LCO shall be met. When an STE LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

LCO 3.0.8 When one or more required snubbers are unable to perform their associated support function(s), any affected supported LCO(s) are not required to be declared not met solely for this reason if risk is assessed and managed, and:

3.0 LCO Applicability

LCO 3.0.8 (continued)

- a. the snubbers not able to perform their associated support function(s) are associated with only one train or subsystem of a multiple train or subsystem supported system or are associated with a single train or subsystem supported system and are able to perform their associated support function within 72 hours; or
- b. the snubbers not able to perform their associated support function(s) are associated with more than one train or subsystem of a multiple train or subsystem supported system and are able to perform their associated support function within 12 hours.

At the end of the specified period the required snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

LCO 3.0.9

When one or more required barriers are unable to perform their related support function(s), any supported system LCO(s) are not required to be declared not met solely for this reason for up to 30 days provided that at least one train or subsystem of the supported system is OPERABLE and supported by barriers capable of providing their related support function(s), and risk is assessed and managed. This specification may be concurrently applied to more than one train or subsystem of a multiple train or subsystem supported system provided at least one train or subsystem of the supported system is OPERABLE and the barriers supporting each of these trains or subsystems provide their related support function(s) for different categories of initiating events.

If the required OPERABLE train or subsystem becomes inoperable while this specification is in use, it must be restored to OPERABLE status within 24 hours or the provisions of this specification cannot be applied to the trains or subsystems supported by the barriers that cannot perform their related support function(s).

At the end of the specified period, the required barriers must be able to perform their related support function(s) or the supported system LCO(s) shall be declared not met.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1 SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

SR 3.0.2 The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

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

If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3 If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. The delay period is only applicable when there is a reasonable expectation the Surveillance will be met when performed. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

3.0 SR Applicability

SR 3.0.4 Entry into a MODE or other specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with LCO 3.0.4.

This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

3.1 REACTIVITY CONTROL SYSTEMS (Analog)

3.1.1 SHUTDOWN MARGIN (SDM) (Analog)

LCO 3.1.1 SDM shall be within the limits specified in the COLR.

APPLICABILITY: MODES 3, 4, and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limits.	A.1 Initiate boration to restore SDM to within limits.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.1.1 Verify SDM to be within the limits specified in the COLR.	[24 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.1 REACTIVITY CONTROL SYSTEMS (Analog)

3.1.2 Reactivity Balance (Analog)

LCO 3.1.2 The core reactivity balance shall be within $\pm 1\% \Delta k/k$ of predicted values.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Core reactivity balance not within limit.	A.1 Re-evaluate core design and safety analysis and determine that the reactor core is acceptable for continued operation.	7 days
	<u>AND</u> A.2 Establish appropriate operating restrictions and SRs.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.2.1</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 effective full power days (EFPD) after each fuel loading. 2. This Surveillance is not required to be performed prior to entry into MODE 2. <p>-----</p> <p>Verify overall core reactivity balance is within $\pm 1.0\% \Delta k/k$ of predicted values.</p>	<p>Prior to entering MODE 1 after fuel loading</p> <p><u>AND</u></p> <p>-----NOTE----- Only required after 60 EFPD -----</p> <p>[31 EFPD</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.1 REACTIVITY CONTROL SYSTEMS (Analog)

3.1.3 Moderator Temperature Coefficient (MTC) (Analog)

LCO 3.1.3 The MTC shall be maintained within the limits specified in the COLR. The maximum positive limit shall be that specified in Figure 3.1.3-1.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. MTC not within limits.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Verify MTC is within the upper limit specified in the COLR.	<p>Prior to entering MODE 1 after each fuel loading</p> <p>[<u>AND</u></p> <p>-----NOTE----- Only required to be performed when MTC determined prior to entering MODE 1 is verified using adjusted predicted MTC -----</p> <p>Each fuel cycle within 7 effective full power days (EFPD) of reaching 40 EFPD core burnup]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.1.3.2</p> <p>-----NOTE-----</p> <p>If the MTC is more negative than the limit specified in the COLR when extrapolated to the end of cycle, SR 3.1.3.2 may be repeated. Shutdown must occur prior to exceeding the minimum allowable boron concentration at which MTC is projected to exceed the lower limit.</p> <p>-----</p> <p>Verify MTC is within the lower limit specified in the COLR.</p>	<p>Each fuel cycle within 7 EFPD of reaching 40 EFPD core burnup</p> <p><u>AND</u></p> <p>Each fuel cycle within 7 EFPD of reaching 2/3 of expected core burnup</p>

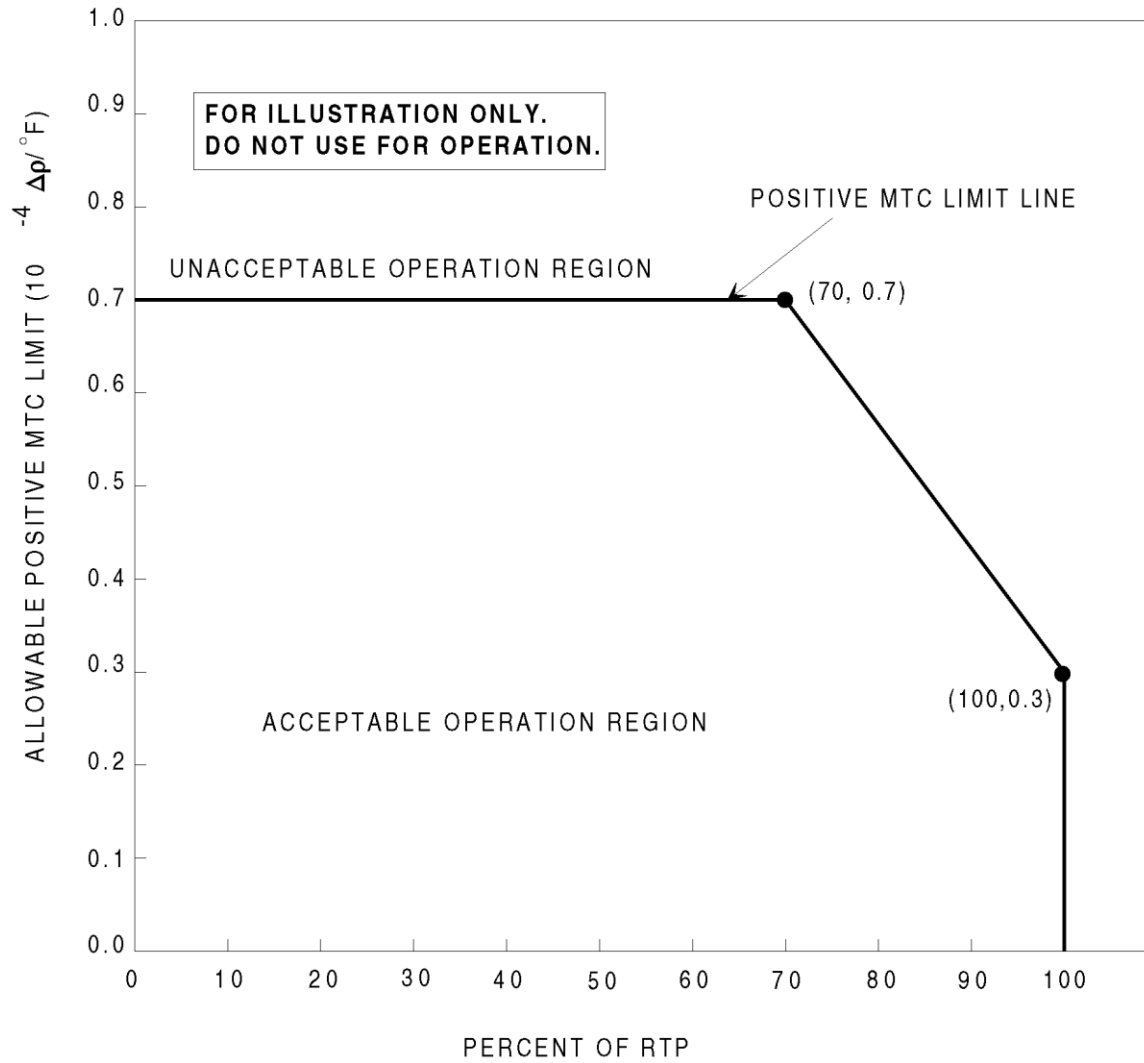


Figure 3.1.3-1 (page 1 of 1)
Allowable Positive MTC Limit

3.1 REACTIVITY CONTROL SYSTEMS (Analog)

3.1.4 Control Element Assembly (CEA) Alignment (Analog)

LCO 3.1.4 All CEAs shall be OPERABLE.

AND

All CEAs shall be aligned to within [7] inches (indicated position) of their respective group, and [the CEA motion inhibit and the CEA deviation circuit shall be OPERABLE].

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more CEAs misaligned from its group by > [7 inches] and ≤ [15 inches].</p> <p><u>OR</u></p> <p>One CEA misaligned from its group by > [15 inches].</p>	<p>A.1 Reduce THERMAL POWER to ≤ 70% RTP.</p> <p><u>AND</u></p> <p>A.2 Restore CEA Alignment.</p>	<p>1 hour</p> <p>2 hours</p>
<p>B. CEA motion inhibit inoperable.</p>	<p>B.1 Perform SR 3.1.4.1.</p> <p><u>AND</u></p> <p>B.2.1 Restore CEA motion inhibit to OPERABLE status.</p> <p><u>OR</u></p>	<p>1 hour</p> <p><u>AND</u></p> <p>Every 4 hours thereafter</p> <p>6 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.2.2 -----NOTE----- Required Action B.2.2 shall not be performed when in conflict with either Required Action A.1, A.2, or C.1. -----</p> <p>Place and maintain the CEA drive switch in either the "off" or "manual" position, [and fully withdraw all CEAs in groups 3 and 4 and withdraw all CEAs in group 5 to < 5% insertion].</p>	6 hours
<p>C. CEA deviation circuit inoperable.</p>	<p>C.1 Perform SR 3.1.4.1.</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Every 4 hours thereafter</p>
<p>D. Required Action and associated Completion Time of Conditions A, B, or C not met.</p> <p><u>OR</u></p> <p>One or more CEAs inoperable.</p> <p><u>OR</u></p> <p>Two or more CEAs misaligned by > [15 inches].</p>	<p>D.1 Be in MODE 3.</p>	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify the indicated position of each CEA to be within [7 inches] of all other CEAs in its group.	<p>Within 1 hour following any CEA movement of > [7 inches]</p> <p><u>AND</u></p> <p>[12 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.1.4.2	Verify the CEA motion inhibit is OPERABLE.	<p>[92 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.3	Verify the CEA deviation circuit is OPERABLE.	[92 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.1.4.4	Verify CEA freedom of movement (trippability) by moving each individual CEA that is not fully inserted into the reactor core [5 inches] in either direction.	[92 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.1.4.5	Perform a CHANNEL FUNCTIONAL TEST of the reed switch position transmitter channel.	[18 months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.1.4.6	Verify each CEA drop time is \leq [3.1] seconds.	Prior to reactor criticality, after each removal of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS (Analog)

3.1.5 Shutdown Control Element Assembly (CEA) Insertion Limits (Analog)

LCO 3.1.5 All shutdown CEAs shall be withdrawn to \geq [129] inches.

APPLICABILITY: MODE 1,
MODE 2 with any regulating CEA not fully inserted.

-----NOTE-----
This LCO is not applicable while performing SR 3.1.4.4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more shutdown CEAs not within limit.	A.1 Restore shutdown CEA(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.5.1 Verify each shutdown CEA is withdrawn \geq [129] inches.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.1 REACTIVITY CONTROL SYSTEMS (Analog)

3.1.6 Regulating Control Element Assembly (CEA) Insertion Limits (Analog)

LCO 3.1.6 The power dependent insertion limit (PDIL) alarm circuit shall be OPERABLE, and the regulating CEA groups shall be limited to the withdrawal sequence and to the insertion limits specified in the COLR.

APPLICABILITY: MODES 1 and 2.

-----NOTE-----
This LCO is not applicable while performing SR 3.1.4.4 [or during reactor power cutback operation].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Regulating CEA groups inserted beyond the transient insertion limit.	A.1 Restore regulating CEA groups to within limits.	2 hours
	<u>OR</u>	
B. Regulating CEA groups inserted between the long term steady state insertion limit and the transient insertion limit for > 4 hours per 24 hour interval.	A.2 Reduce THERMAL POWER to less than or equal to the fraction of RTP allowed by the CEA group position and insertion limits specified in the COLR.	2 hours
	<u>OR</u>	
B.1 Verify short term steady state insertion limits are not exceeded.	B.1 Verify short term steady state insertion limits are not exceeded.	15 minutes
	<u>OR</u>	
B.2 Restrict increases in THERMAL POWER to ≤ 5% RTP per hour.	B.2 Restrict increases in THERMAL POWER to ≤ 5% RTP per hour.	15 minutes
	<u>OR</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Regulating CEA groups inserted between the long term steady state insertion limit and the transient insertion limit for intervals > 5 effective full power days (EFPD) per 30 EFPD interval or > 14 EFPD per 365 EFPD.</p>	<p>C.1 Restore regulating CEA groups to within limits.</p>	<p>2 hours</p>
<p>D. PDIL alarm circuit inoperable.</p>	<p>D.1 Perform SR 3.1.6.1.</p>	<p>1 hour <u>AND</u> Once per 4 hours thereafter</p>
<p>E. Required Action and associated Completion Time not met.</p>	<p>E.1 Be in MODE 3.</p>	<p>6 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	<p>-----NOTE----- Not required to be performed until 12 hours after entry into MODE 2. -----</p> <p>Verify each regulating CEA group position is within its insertion limits.</p>	<p>[12 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.1.6.2	<p>Verify the accumulated times during which the regulating CEA groups are inserted beyond the steady state insertion limits but within the transient insertion limits.</p>	<p>[24 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.1.6.3	<p>Verify PDIL alarm circuit is OPERABLE.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.1 REACTIVITY CONTROL SYSTEMS (Analog)

3.1.7 Special Test Exceptions (STE) - SHUTDOWN MARGIN (SDM) (Analog)

LCO 3.1.7 During performance of PHYSICS TESTS, the requirements of:

LCO 3.1.1, "SHUTDOWN MARGIN,"
LCO 3.1.5, "Shutdown Control Element Assembly Insertion Limits," and
LCO 3.1.6, "Regulating Control Element Assembly Insertion Limits,"

may be suspended for measurement of Control Element Assembly (CEA) worth, provided shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion.

APPLICABILITY: MODES 2 and 3 during PHYSICS TESTS.

-----NOTE-----
Operation in MODE 3 shall be limited to 6 consecutive hours.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Any CEA not fully inserted and less than the above shutdown reactivity equivalent available for trip insertion.</p> <p><u>OR</u></p> <p>All CEAs inserted and the reactor subcritical by less than the above shutdown reactivity equivalent.</p>	<p>A.1 Initiate boration to restore required shutdown reactivity.</p>	<p>15 minutes</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify that the position of each CEA not fully inserted is within the acceptance criteria for available negative reactivity addition.	[2 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.1.7.2	<p>-----NOTE-----</p> <p>Not required to be performed during initial power escalation following a refueling outage if SR 3.1.4.6 has been met.</p> <p>-----</p> <p>Verify that each CEA not fully inserted is capable of full insertion when tripped from at least the 50% withdrawn position.</p>	Once within [7 days] prior to reducing SDM to less than the limits of LCO 3.1.1

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 Special Test Exceptions (STE) - MODES 1 and 2 (Analog)

LCO 3.1.8 During the performance of PHYSICS TESTS, the requirements of:

- LCO 3.1.3, "Moderator Temperature Coefficient (MTC),"
- LCO 3.1.4, "Control Element Assembly (CEA) Alignment,"
- LCO 3.1.5, "Shutdown Control Element Assembly (CEA) Insertion Limits,"
- LCO 3.1.6, "Regulating Control Element Assembly (CEA) Insertion Limits,"
- LCO 3.2.2, "Total Planar Radial Peaking Factor (F_{xy}^T),"
- LCO 3.2.3, "Total Integrated Radial Peaking Factor (F_r^T)," and
- LCO 3.2.4, "AZIMUTHAL POWER TILT (T_q),"

may be suspended, provided THERMAL POWER is restricted to the test power plateau, which shall not exceed 85% RTP.

APPLICABILITY: MODES 1 and 2 during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Test power plateau exceeded.	A.1 Reduce THERMAL POWER to less than or equal to test power plateau.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Suspend PHYSICS TESTS.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.8.1 Verify THERMAL POWER is equal to or less than the test power plateau.	[1 hour <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.1 REACTIVITY CONTROL SYSTEMS (Digital)

3.1.1 SHUTDOWN MARGIN (SDM) (Digital)

LCO 3.1.1 SDM shall be within the limits specified in the COLR.

APPLICABILITY: MODES 3, 4, and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.1.1 Verify SDM to be within the limits specified in the COLR.	[24 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.1 REACTIVITY CONTROL SYSTEMS (Digital)

3.1.2 Reactivity Balance (Digital)

LCO 3.1.2 The core reactivity balance shall be within $\pm 1\% \Delta k/k$ of predicted values.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Core reactivity balance not within limit.	A.1 Re-evaluate core design and safety analysis and determine that the reactor core is acceptable for continued operation.	7 days
	<u>AND</u> A.2 Establish appropriate operating restrictions and SRs.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.2.1</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 effective full power days (EFPD) after each fuel loading. 2. This Surveillance is not required to be performed prior to entry into MODE 2. <p>-----</p> <p>Verify overall core reactivity balance is within $\pm 1.0\% \Delta k/k$ of predicted values.</p>	<p>Prior to entering MODE 1 after fuel loading</p> <p><u>AND</u></p> <p>-----NOTE----- Only required after 60 EFPD -----</p> <p>[31 EFPD</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.1 REACTIVITY CONTROL SYSTEMS (Digital)

3.1.3 Moderator Temperature Coefficient (MTC) (Digital)

LCO 3.1.3 The MTC shall be maintained within the limits specified in the COLR, and a maximum positive limit as specified below:

- a. $[0.5 \text{ E-4 } \Delta k/k/^{\circ}\text{F}]$ when THERMAL POWER is $\leq 70\%$ RTP and
- b. $[0.0 \Delta k/k/^{\circ}\text{F}]$ when THERMAL POWER is $> 70\%$ RTP.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. MTC not within limits.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.3.1 Verify MTC is within the upper limit specified in the COLR.</p>	<p>Prior to entering MODE 1 after each fuel loading</p> <p>[<u>AND</u></p> <p>-----NOTE----- Only required to be performed when MTC determined prior to entering MODE 1 is verified using adjusted predicted MTC -----</p> <p>Each fuel cycle within 7 effective full power days (EFPD) of reaching 40 EFPD core burnup]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.1.3.2</p> <p>-----NOTE-----</p> <p>If the MTC is more negative than the limit specified in the COLR when extrapolated to the end of cycle, SR 3.1.3.2 may be repeated. Shutdown must occur prior to exceeding the minimum allowable boron concentration at which MTC is projected to exceed the lower limit.</p> <p>-----</p> <p>Verify MTC is within the lower limit specified in the COLR.</p>	<p>Each fuel cycle within 7 EFPD of reaching 40 EFPD core burnup</p> <p><u>AND</u></p> <p>Each fuel cycle within 7 EFPD of reaching 2/3 of expected core burnup</p>

3.1 REACTIVITY CONTROL SYSTEMS (Digital)

3.1.4 Control Element Assembly (CEA) Alignment (Digital)

LCO 3.1.4 All full length CEAs shall be OPERABLE.

AND

All full and part length CEAs shall be aligned to within [7 inches] (indicated position) of their respective groups.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more CEAs misaligned from its group by > [7 inches] and ≤ [19 inches].</p> <p><u>OR</u></p> <p>One CEA misaligned from its group by > [19 inches].</p>	<p>A.1 Reduce THERMAL POWER in accordance with Figure 3.1.4-1.</p> <p><u>AND</u></p> <p>A.2 Restore CEA Alignment.</p>	<p>1 hour</p> <p>2 hours</p>
<p>B. Required Action and associated Completion Time not met.</p> <p><u>OR</u></p> <p>One or more full length CEAs inoperable.</p> <p><u>OR</u></p> <p>Two or more CEAs misaligned by > [19 inches].</p>	<p>B.1 Be in MODE 3.</p>	<p>6 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify the indicated position of each full and part length CEA is within [7 inches] of all other CEAs in its group.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.1.4.2	Verify that, for each CEA, its OPERABLE CEA position indicator channels indicate within [5 inches] of each other.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.1.4.3	Verify full length CEA freedom of movement (trippability) by moving each individual full length CEA that is not fully inserted in the core at least [5 inches].	[92 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.1.4.4	Perform a CHANNEL FUNCTIONAL TEST of each reed switch position transmitter channel.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.5	Verify each full length CEA drop time $\leq [3.5]$ seconds and the arithmetic average of all full length CEA drop times $\leq [3.2]$ seconds.	Prior to reactor criticality, after each removal of the reactor head

-----NOTE-----

When core power is reduced to 60% RTP per this limit curve, further reduction is not required by this Specification.

[NOT TO BE USED FOR OPERATION.
FOR ILLUSTRATION PURPOSES ONLY.]

Figure 3.1.4-1 (page 1 of 1)
Required Power Reduction After CEA Deviation

3.1 REACTIVITY CONTROL SYSTEMS (Digital)

3.1.5 Shutdown Control Element Assembly (CEA) Insertion Limits (Digital)

LCO 3.1.5 All shutdown CEAs shall be withdrawn to \geq [145] inches.

APPLICABILITY: MODE 1,
MODE 2 with any regulating CEA not fully inserted.

-----NOTE-----
This LCO is not applicable while performing SR 3.1.4.3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more shutdown CEAs not within limit.	A.1 Restore shutdown CEA(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.5.1 Verify each shutdown CEA is withdrawn \geq [145] inches.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.1 REACTIVITY CONTROL SYSTEMS (Digital)

3.1.6 Regulating Control Element Assembly (CEA) Insertion Limits (Digital)

- LCO 3.1.6 The power dependent insertion limit (PDIL) alarm circuit shall be OPERABLE and
- a. With the Core Operating Limit Supervisory System (COLSS) in service, the regulating CEA groups shall be limited to the withdrawal sequence, insertion limits, and associated time restraints specified in the COLR.
 - b. With COLSS out of service, the regulating CEA groups shall be limited to the short term steady state insertion limit and associated time restraints specified in the COLR.

APPLICABILITY: MODES 1 and 2.

-----NOTE-----
This LCO is not applicable while conducting SR 3.1.4.3 [or during reactor power cutback operation].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Regulating CEA groups inserted beyond the transient insertion limit with COLSS in service.	A.1 Restore regulating CEA groups to within limits.	2 hours
	<u>OR</u>	
	A.2 Reduce THERMAL POWER to less than or equal to the fraction of RTP allowed by the CEA group position and insertion limits specified in the COLR.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Regulating CEA groups inserted between the long term steady state insertion limit and the transient insertion limit for > 4 hours per 24 hour interval with COLSS in service.</p>	<p>B.1 Verify short term steady state insertion limits are not exceeded.</p> <p><u>OR</u></p> <p>B.2 Restrict increases in THERMAL POWER to $\leq 5\%$ RTP per hour.</p>	<p>15 minutes</p> <p>15 minutes</p>
<p>C. Regulating CEA groups inserted between the long term steady state insertion limit and the transient insertion limit for intervals > 5 effective full power days (EFPD) per 30 EFPD interval or > 14 EFPD per 365 EFPD interval with COLSS in service.</p>	<p>C.1 Restore regulating CEA groups to within limits.</p>	<p>2 hours</p>
<p>D. Regulating CEA groups inserted beyond the short term steady state insertion limit with COLSS out of service.</p>	<p>D.1 Restore regulating CEA groups to within limits.</p> <p><u>OR</u></p> <p>D.2 Reduce THERMAL POWER to less than or equal to the fraction of RTP allowed by CEA group position and short term steady state insertion limit specified in the COLR.</p>	<p>2 hours</p> <p>2 hours</p>
<p>E. PDIL alarm circuit inoperable.</p>	<p>E.1 Perform SR 3.1.6.1.</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 4 hours thereafter</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Actions and associated Completion Times not met.	F.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.6.1</p> <p>-----NOTE----- Not required to be performed until 12 hours after entry into MODE 2. -----</p> <p>Verify each regulating CEA group position is within its insertion limits.</p>	<p>[12 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.1.6.2</p> <p>Verify the accumulated times during which the regulating CEA groups are inserted beyond the steady state insertion limits but within the transient insertion limits.</p>	<p>[24 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.6.3	Verify PDIL alarm circuit is OPERABLE.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.1 REACTIVITY CONTROL SYSTEMS (Digital)

3.1.7 Part Length Control Element Assembly (CEA) Insertion Limits (Digital)

LCO 3.1.7 The part length CEA groups shall be limited to the insertion limits specified in the COLR.

APPLICABILITY: MODE 1 > 20% RTP.

-----NOTE-----
This LCO not applicable while exercising part length CEAs.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Part length CEA groups inserted beyond the transient insertion limit.	A.1 Restore part length CEA groups to within the limit.	2 hours
	<u>OR</u> A.2 Reduce THERMAL POWER to less than or equal to that fraction of RTP specified in the COLR.	2 hours
B. Part length CEA groups inserted between the long term steady state insertion limit and the transient insertion limit for intervals ≥ 7 effective full power days (EFPD) per 30 EFPD or ≥ 14 EFPD per 365 EFPD interval.	B.1 Restore part length CEA groups to within the long term steady state insertion limit.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition B not met.	C.1 Reduce THERMAL POWER to $\leq 20\%$ RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.7.1 Verify part length CEA group position.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.1 REACTIVITY CONTROL SYSTEMS (Digital)

3.1.8 Special Test Exceptions (STE) - SHUTDOWN MARGIN (SDM) (Digital)

LCO 3.1.8 During performance of PHYSICS TESTS, the requirements of:

- LCO 3.1.1, "SHUTDOWN MARGIN (SDM),"
- LCO 3.1.5, "Shutdown Control Element Assembly (CEA) Insertion Limits," and
- LCO 3.1.6, "Regulating Control Element Assembly (CEA) Insertion Limits,"

may be suspended for measurement of CEA worth, provided shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion.

APPLICABILITY: MODES 2 and 3 during PHYSICS TESTS.

-----NOTE-----
Operation in MODE 3 shall be limited to 6 consecutive hours.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Any full length CEA not fully inserted and less than the required shutdown reactivity available for trip insertion.</p> <p><u>OR</u></p> <p>All full length CEAs inserted and the reactor subcritical by less than the above required shutdown reactivity equivalent.</p>	<p>A.1 Initiate boration to restore required shutdown reactivity.</p>	<p>15 minutes</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	Verify that the position of each CEA not fully inserted is within the acceptance criteria for available negative reactivity addition.	[2 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.1.8.2	<p>-----NOTE-----</p> <p>Not required to be performed during initial power escalation following a refueling outage if SR 3.1.4.5 has been met.</p> <p>-----</p> <p>Verify each full length CEA not fully inserted is capable of full insertion when tripped from at least the 50% withdrawn position.</p>	Once within [7 days] prior to reducing SDM to less than the limits of LCO 3.1.1

3.1 REACTIVITY CONTROL SYSTEMS (Digital)

3.1.9 Special Test Exceptions (STE) - MODES 1 and 2 (Digital)

LCO 3.1.9 During performance of PHYSICS TESTS, the requirements of:

- LCO 3.1.3, "Moderator Temperature Coefficient (MTC),"
- LCO 3.1.4, "Control Element Assembly (CEA) Alignment,"
- LCO 3.1.5, "Shutdown Control Element Assembly (CEA) Insertion Limits,"
- LCO 3.1.6, "Regulating Control Element Assembly (CEA) Insertion Limits,"
- LCO 3.1.7, "Part Length Control Element Assembly (CEA) Insertion Limits,"
- LCO 3.2.2, "Planar Radial Peaking Factors (F_{XY})," and
- LCO 3.2.3, "AZIMUTHAL POWER TILT (T_q),"

may be suspended, provided THERMAL POWER is restricted to the test power plateau, which shall not exceed 85% RTP.

APPLICABILITY: MODES 1 and 2 during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Test power plateau exceeded.	A.1 Reduce THERMAL POWER to less than or equal to the test power plateau.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Suspend PHYSICS TESTS.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.9.1 Verify THERMAL POWER equal to or less than the test power plateau.	[1 hour <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.2 POWER DISTRIBUTION LIMITS (Analog)

3.2.1 Linear Heat Rate (LHR) (Analog)

LCO 3.2.1 LHR shall not exceed the limits specified in the COLR.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. LHR, as determined by the Incore Detector Monitoring System, exceeds the limits specified in the COLR, as indicated by four or more coincident incore channels.</p> <p><u>OR</u></p> <p>LHR, as determined by the Excore Detector Monitoring System, exceeds the limits as indicated by the ASI outside the power dependent control limits specified in the COLR.</p>	<p>A.1 Restore LHR to within limits.</p>	<p>1 hour</p>
<p>B. Required Action and associated Completion Time not met.</p>	<p>B.1 Be in MODE 2.</p>	<p>6 hours</p>

SURVEILLANCE REQUIREMENTS

-----NOTE-----
 Either the Excore Detector Monitoring System or the Incore Detector Monitoring System shall be used to determine LHR.

SURVEILLANCE	FREQUENCY
<p>SR 3.2.1.1</p> <p>-----NOTE----- Only required to be met when the Excore Detector Monitoring System is being used to determine LHR. -----</p> <p>Verify ASI alarm setpoints are within the limits specified in the COLR.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.2.1.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Only required to be met when the Incore Detector Monitoring System is being used to determine LHR. 2. Not required to be performed below 20% RTP. <p>-----</p> <p>Verify incore detector local power density alarms satisfy the requirements of the core power distribution map, which shall be updated at least once per 31 days of accumulated operation in MODE 1.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.2.1.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Only required to be met when the Incore Detector Monitoring System is being used to determine LHR. 2. Not required to be performed below 20% RTP. <p>-----</p> <p>Verify incore detector local power density alarm setpoints are less than or equal to the limits specified in the COLR.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.2 POWER DISTRIBUTION LIMITS (Analog)

3.2.2 Total Planar Radial Peaking Factor (F_{xy}^T) (Analog)

LCO 3.2.2 The calculated value of F_{xy}^T shall not exceed the limits specified in the COLR.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Required Actions shall be completed if this Condition is entered. ----- F_{xy}^T not within limits.</p>	<p>A.1 Reduce THERMAL POWER to bring the combination of THERMAL POWER and F_{xy}^T to within the limits specified in the COLR.</p>	6 hours
	<p style="text-align: center;"><u>AND</u></p> <p>A.2 Withdraw the control element assemblies (CEAs) to or beyond the long term steady state insertion limits of LCO 3.1.6, "Regulating CEAs," as specified in the COLR.</p>	6 hours
<p>B. Required Action and associated Completion Time not met.</p>	<p>B.1 Be in MODE 2.</p>	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.2.1</p> <p>-----NOTE----- SR 3.2.2.2 and SR 3.2.2.3 shall be completed each time SR 3.2.2.1 is required. F_{xy}^T shall be determined by using the incore detectors to obtain a power distribution map with all full length CEAs at or above the long term steady state insertion limit, as specified in the COLR.</p> <p>-----</p> <p>Verify the value of F_{xy}^T</p>	<p>Once prior to operation above 70% RTP after each fuel loading</p> <p><u>AND</u></p> <p>[Each 31 days of accumulated operation in MODE 1</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.2.2.2</p> <p>Verify the value of F_{xy}.</p>	<p>In accordance with the Frequency requirements of SR 3.2.2.1</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.2.2.3	Verify the value of T_q .	In accordance with the Frequency requirements of SR 3.2.2.1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.3.1</p> <p style="text-align: center;">-----NOTE-----</p> <p>SR 3.2.3.2 and SR 3.2.3.3 shall be completed each time SR 3.2.3.1 is required. F_r^T shall be determined by using the incore detectors to obtain a power distribution map with all full length CEAs at or above the long term steady state insertion limit as specified in the COLR.</p> <p style="text-align: center;">-----</p> <p>Verify the value of F_r^T.</p>	<p>Prior to operation > 70% RTP after each fuel loading</p> <p><u>AND</u></p> <p>[Each 31 days of accumulated operation in MODE 1</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.2.3.2 Verify the value of F_r.</p>	<p>In accordance with the Frequency requirements of SR 3.2.3.1</p>
<p>SR 3.2.3.3 Verify the value of T_q.</p>	<p>In accordance with the Frequency requirements of SR 3.2.3.1</p>

3.2 POWER DISTRIBUTION LIMITS (Analog)

3.2.4 AZIMUTHAL POWER TILT (T_q) (Analog)

LCO 3.2.4 T_q shall be ≤ [0.03].

APPLICABILITY: MODE 1 with THERMAL POWER > 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Indicated T _q > [0.03] and ≤ 0.10.	A.1 Restore T _q to ≤ [0.03].	2 hours
	<u>OR</u> A.2 Verify F _{xy} ^T and F _r ^T are within the limits of LCO 3.2.2, "Total Planar Radial Peaking Factor (F _{xy} ^T)," and LCO 3.2.3, "Total Integrated Radial Peaking Factor (F _r ^T)," respectively.	2 hours <u>AND</u> Once per 8 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Reduce THERMAL POWER to ≤ 50% RTP.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Indicated T _q > 0.10.	<p>-----NOTE----- All subsequent Required Actions must be completed if power reduction commences prior to restoring T_q ≤ 0.10. -----</p>	
	<p>C.1 Verify F_{xy}^T and F_r^T are within the limits of LCO 3.2.2 and LCO 3.2.3, respectively.</p> <p><u>AND</u></p>	1 hour
	<p>C.2 Reduce THERMAL POWER to < 50% RTP.</p> <p><u>AND</u></p>	2 hours
	<p>C.3 Restore T_q to ≤ [0.03].</p>	<p>Correct the cause of the out of limit condition prior to increasing THERMAL POWER. Subsequent power operation above 50% RTP may proceed provided that the measured T_q is verified ≤ [0.03] at least once per hour for 12 hours, or until verified at 95% RTP</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	Verify T _q is within limits.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.2 POWER DISTRIBUTION LIMITS (Analog)

3.2.5 AXIAL SHAPE INDEX (ASI) (Analog)

LCO 3.2.5 The ASI shall be maintained within the limits specified in the COLR.

APPLICABILITY: MODE 1 with THERMAL POWER > 20% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ASI not within limits.	A.1 Restore ASI to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to \leq 20% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.5.1 Verify ASI is within limits specified in the COLR.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.2 POWER DISTRIBUTION LIMITS (Digital)

3.2.1 Linear Heat Rate (LHR) (Digital)

LCO 3.2.1 LHR shall not exceed the limits specified in the COLR.

APPLICABILITY: MODE 1 with THERMAL POWER > 20% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Core Operating Limit Supervisory System (COLSS) calculated core power exceeds the COLSS calculated core power operating limit based on LHR.	A.1 Restore LHR to within limits.	1 hour
B. LHR not within region of acceptable operation when the COLSS is out of service.	B.1 Determine trend in LHR. <u>AND</u> B.2.1 With an adverse trend, restore LHR to within limits. <u>OR</u> B.2.2 With no adverse trend, restore LHR to within limits.	Once per 15 minutes 1 hour 4 hours
C. Required Action and associated Completion Time not met.	C.1 Reduce THERMAL POWER to \leq 20% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.1.1</p> <p>-----NOTE----- Only required to be met when COLSS is out of service. With COLSS in service, LHR is continuously monitored. -----</p> <p>Verify LHR, as indicated on each OPERABLE local power density channel, is within its limit.</p>	<p>[2 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.2.1.2</p> <p>Verify the COLSS margin alarm actuates at a THERMAL POWER equal to or less than the core power operating limit based on LHR.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.2 POWER DISTRIBUTION LIMITS (Digital)

3.2.2 Planar Radial Peaking Factors (F_{xy}) (Digital)

LCO 3.2.2 The measured Planar Radial Peaking Factors (F_{xy}^M) shall be equal to or less than the Planar Radial Peaking Factors (F_{xy}^C). (These factors are used in the Core Operating Limit Supervisory System (COLSS) and in the Core Protection Calculators (CPCs)).

APPLICABILITY: MODE 1 with THERMAL POWER > 20% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. $F_{xy}^M > F_{xy}^C$.	A.1.1 Adjust addressable CPC constants to increase the multiplier applied to planar radial peaking by a factor $\geq F_{xy}^M / F_{xy}^C$. <u>AND</u>	6 hours
	A.1.2 Maintain a margin to the COLSS operating limits of $[(F_{xy}^M / F_{xy}^C) - 1.0] \times 100\%$ <u>OR</u>	6 hours
	A.2 Adjust the affected F _{xy} ^C used in the COLSS and CPCs to a value greater than or equal to the measured F _{xy} ^M . <u>OR</u>	6 hours
	A.3 Reduce THERMAL POWER to $\leq 20\%$ RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify measured F_{xy}^M obtained using the Incore Detector System is equal to or less than the value of F_{xy}^C used in the COLSS and CPCs.	<p>Once after each fuel loading with THERMAL POWER > 40% RTP but prior to operations above 70% RTP</p> <p><u>AND</u></p> <p>[31 EFPD thereafter</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.2 POWER DISTRIBUTION LIMITS (Digital)

3.2.3 AZIMUTHAL POWER TILT (T_q) (Digital)

LCO 3.2.3 The measured T_q shall be less than or equal to the T_q allowance used in the core protection calculators (CPCs).

APPLICABILITY: MODE 1 with THERMAL POWER > 20% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Measured T _q greater than the allowance used in the CPCs and ≤ [0.10].	A.1 Restore measured T _q .	2 hours
	<u>OR</u> A.2 Adjust the T _q allowance in the CPCs to greater than or equal to the measured value.	2 hours
B. Measured T _q > [0.10].	-----NOTE----- All subsequent Required Actions must be completed if power reduction commences prior to restoring T _q to ≤ [0.10]. -----	
	B.1 Reduce THERMAL POWER to ≤ 50% RTP.	4 hours
	<u>AND</u> B.2 Reduce Linear Power Level - High trip setpoints to ≤ 55% RTP. <u>AND</u>	16 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.3 Restore the measured T_q to less than the T_q allowance used in the CPCs.</p>	<p>Prior to increasing THERMAL POWER</p> <p>-----NOTE----- Correct the cause of the out of limit condition prior to increasing THERMAL POWER. Subsequent power operation > 50% RTP may proceed provided that the measured T_q is verified ≤ [0.10] at least once per hour for 12 hours, or until verified at ≥ 95% RTP</p> <p>-----</p>
<p>C. Required Actions and associated Completion Times not met.</p>	<p>C.1 Reduce THERMAL POWER to ≤ 20%.</p>	<p>6 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.3.1</p> <p>-----NOTE----- Only required to be met when COLSS is out of service. With COLSS in service, this parameter is continuously monitored. -----</p> <p>Calculate T_q and verify it is within the limit.</p>	<p>[12 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.2.3.2</p> <p>Verify COLSS azimuthal tilt alarm is actuated at a T_q value less than the T_q value used in the CPCs.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.2.3.3</p> <p>Independently confirm the validity of the COLSS calculated T_q by use of the incore detectors.</p>	<p>[31 EFPD</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.2 POWER DISTRIBUTION LIMITS (Digital)

3.2.4 Departure From Nucleate Boiling Ratio (DNBR) (Digital)

- LCO 3.2.4 The DNBR shall be maintained by one of the following methods:
- a. Maintaining Core Operating Limit Supervisory System (COLSS) calculated core power less than or equal to COLSS calculated core power operating limit based on DNBR (when COLSS is in service, and either one or both control element assembly calculators (CEACs) are OPERABLE),
 - b. Maintaining COLSS calculated core power less than or equal to COLSS calculated core power operating limit based on DNBR decreased by the allowance specified in the COLR (when COLSS is in service and neither CEAC is OPERABLE),
 - c. Operating within the region of acceptable operation of Figure 3.2.4-1 specified in the COLR using any operable core protection calculator (CPC) channel (when COLSS is out of service and either one or both CEACs are OPERABLE), or
 - d. Operating within the region of acceptable operation of Figure 3.2.4-2 specified in the COLR using any operable CPC channel (when COLSS is out of service and neither CEAC is OPERABLE).

APPLICABILITY: MODE 1 with THERMAL POWER > 20% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. COLSS calculated core power not within limit.	A.1 Restore the DNBR to within limit.	1 hour
B. DNBR outside the region of acceptable operation when COLSS is out of service.	B.1 [Determine trend in DNBR. <u>AND</u>	Once per 15 minutes]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.1 With an adverse trend, restore DNBR to within limit. <u>OR</u> B.2.2 With no adverse trend, restore DNBR to within limit.	1 hour 4 hours
C. Required Action and associated Completion Time not met.	C.1 Reduce THERMAL POWER to \leq 20% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.4.1 -----NOTE----- Only required to be met when COLSS is out of service. With COLSS in service, this parameter is continuously monitored. ----- Verify DNBR, as indicated on all OPERABLE DNBR channels, is within the limit of Figure 3.2.4-1 or 3.2.4-2 of the COLR, as applicable.	[2 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.2.4.2 Verify COLSS margin alarm actuates at a THERMAL POWER level equal to or less than the core power operating limit based on DNBR.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.2 POWER DISTRIBUTION LIMITS (Digital)

3.2.5 AXIAL SHAPE INDEX (ASI) (Digital)

LCO 3.2.5 ASI shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1 with THERMAL POWER > 20% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Core average ASI not within limits.	A.1 Restore ASI to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to \leq 20% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.5.1 Verify ASI is within limits.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.3 INSTRUMENTATION (Analog)

3.3.1 Reactor Protective System (RPS) Instrumentation - Operating (Analog)

LCO 3.3.1 Four RPS trip units and associated instrument and bypass removal channels for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each RPS Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more Functions with one RPS trip unit or associated instrument channel inoperable except for Condition C (excore channel not calibrated with incore detectors).</p>	<p>A.1 Place affected trip unit in bypass or trip.</p> <p><u>AND</u></p> <p>A.2.1 Restore channel to OPERABLE status.</p> <p><u>OR</u></p> <p>A.2.2 [Place affected trip unit in trip.</p>	<p>1 hour</p> <p>[48] hours</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>48 hours</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One or more Functions with two RPS trip units or associated instrument channels inoperable except for Condition C (excore channel not calibrated with incore detectors).</p>	<p>B.1 Place one trip unit in bypass and place the other trip unit in trip.</p> <p><u>AND</u></p> <p>B.2 Restore one trip unit to OPERABLE status.</p>	<p>1 hour</p> <p>[48] hours</p> <p><u>[OR]</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. One or more Functions with one or more power range excore channels not calibrated with the incore detectors.</p>	<p>C.1 Perform SR 3.3.1.3.</p> <p><u>OR</u></p> <p>C.2 Restrict THERMAL POWER to $\leq 90\%$ RTP.</p>	<p>24 hours</p> <p>24 hours</p>
<p>D. One or more Functions with one automatic bypass removal channel inoperable.</p>	<p>D.1 Disable bypass channel.</p> <p><u>OR</u></p> <p>D.2.1 Place affected trip units in bypass or trip.</p> <p><u>AND</u></p> <p>D.2.2.1 Restore bypass removal channel and affected trip units to OPERABLE status.</p> <p><u>OR</u></p>	<p>1 hour</p> <p>1 hour</p> <p>[48] hours</p> <p><u>[OR]</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.2.2.2 [Place affected trip units in trip.	48 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]]
E. One or more Functions with two automatic bypass removal channels inoperable.	E.1 Disable bypass channels. <u>OR</u> E.2.1 [Place one affected trip unit in bypass and place the other in trip for each affected trip Function. <u>AND</u> E.2.2 Restore one automatic bypass removal channel and the associated trip unit to OPERABLE status for each affected trip Function.	1 hour [48] hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]]
F. Required Action and associated Completion Time not met for Axial Power Distribution and Loss of Load Trip Functions.	F.1 Reduce THERMAL POWER to < 15% RTP.	6 hours
G. Required Action and associated Completion Time not met except for Axial Power Distribution or Loss of Load Trip Functions.	G.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----
Refer to Table 3.3.1-1 to determine which SR shall be performed for each RPS Function.

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.1 Perform a CHANNEL CHECK of each RPS instrument channel except Loss of Load.</p>	<p>[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.1.2 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Not required to be performed until 12 hours after THERMAL POWER is \geq [20]% RTP. 2. The daily calibration may be suspended during PHYSICS TESTS, provided the calibration is performed upon reaching each major test power plateau and prior to proceeding to the next major test power plateau. <p>-----</p> <p>Perform calibration (heat balance only) and adjust the excore power range and ΔT power channels to agree with calorimetric calculation if the absolute difference is \geq [1.5]%.</p>	<p>[24 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.3</p> <p>-----NOTE----- Not required to be performed until 12 hours after THERMAL POWER is \geq [20]% RTP. -----</p> <p>Calibrate the power range excore channels using the incore detectors.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.1.4</p> <p>Perform a CHANNEL FUNCTIONAL TEST of each RPS channel except Loss of Load and Power Rate of Change.</p>	<p>[[92] days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.1.5</p> <p>-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----</p> <p>Perform a CHANNEL CALIBRATION on excore power range channels.</p>	<p>[92 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.6	Perform a CHANNEL FUNCTIONAL TEST of each Power Rate of Change channel and each Loss of Load functional unit.	Once within 7 days prior to each reactor startup
SR 3.3.1.7	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.	Once within 92 days prior to each reactor startup
SR 3.3.1.8	<p>-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----</p> <p>Perform a CHANNEL CALIBRATION of each RPS instrument channel, including bypass removal functions.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.3.1.9	<p>-----NOTE----- Neutron detectors are excluded. -----</p> <p>Verify RPS RESPONSE TIME is within limits.</p>	<p>[[18] months on a STAGGERED TEST BASIS</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

Table 3.3.1-1 (page 1 of 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Variable High Power Trip	1, 2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 ^{(a)(b)} SR 3.3.1.5 ^{(a)(b)} SR 3.3.1.8 ^{(a)(b)} SR 3.3.1.9	≤ [10]% RTP above current THERMAL POWER but not < [30]% RTP nor > [107]% RTP
2. Power Rate of Change - High ^(c)	1, 2	SR 3.3.1.1 SR 3.3.1.6 ^{(a)(b)} SR 3.3.1.7 SR 3.3.1.8 ^{(a)(b)}	≤ [2.6] dpm
3. Reactor Coolant Flow - Low ^(d)	1, 2	SR 3.3.1.1 SR 3.3.1.4 ^{(a)(b)} SR 3.3.1.7 SR 3.3.1.8 ^{(a)(b)} SR 3.3.1.9	≥ [95]%
4. Pressurizer Pressure - High	1, 2	SR 3.3.1.1 SR 3.3.1.4 ^{(a)(b)} SR 3.3.1.8 ^{(a)(b)} SR 3.3.1.9	≤ [2400] psia
5. Containment Pressure - High	1, 2	[SR 3.3.1.1] SR 3.3.1.4 ^{(a)(b)} SR 3.3.1.8 ^{(a)(b)} SR 3.3.1.9	≤ [4.0] psig

- (a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].
- (c) Trip may be bypassed when THERMAL POWER is < [1E-4]% RTP or > [13]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [1E-4]% RTP and ≤ [13]% RTP.
- (d) Trips may be bypassed when THERMAL POWER is < [1E-4]%. Bypass shall be automatically removed when THERMAL POWER is ≥ [1E-4]% RTP. During testing pursuant to LCO 3.4.17, RCS Loops - Test Exceptions, trips may be bypassed below 5% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ 5% RTP.

Table 3.3.1-1 (page 2 of 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Steam Generator Pressure - Low ^(e)	1, 2	SR 3.3.1.1 SR 3.3.1.4 ^{(a)(b)} SR 3.3.1.7 SR 3.3.1.8 ^{(a)(b)} SR 3.3.1.9	≥ [685] psia
7a. Steam Generator A Level - Low	1, 2	SR 3.3.1.1 SR 3.3.1.4 ^{(a)(b)} SR 3.3.1.8 ^{(a)(b)} SR 3.3.1.9	≥ [24.7]%
7b. Steam Generator B Level - Low	1, 2	SR 3.3.1.1 SR 3.3.1.4 ^{(a)(b)} SR 3.3.1.8 ^{(a)(b)} SR 3.3.1.9	≥ [24.7]%
[8. Axial Power Distribution - High	1 ^(f) (g)	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 ^{(a)(b)} SR 3.3.1.5 ^{(a)(b)} SR 3.3.1.7 SR 3.3.1.8 ^{(a)(b)} SR 3.3.1.9	Figure 3.3.1-3]

- (a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].
- (e) Trip may be bypassed when steam generator pressure is < [785] psig. Bypass shall be automatically removed when steam generator pressure is ≥ [785] psig.
- (f) Trip is not applicable and may be bypassed when THERMAL POWER is < [15]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [15]% RTP.
- (g) Trip is only applicable in MODE 1 ≥ [15]% RTP.

Table 3.3.1-1 (page 3 of 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
9a. Thermal Margin/Low Pressure (TM/LP) ^(d)	1, 2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 ^{(a)(b)} SR 3.3.1.5 ^{(a)(b)} SR 3.3.1.7 [SR 3.3.1.8] ^{(a)(b)} SR 3.3.1.9	Figures 3.3.1-1 and 3.3.1-2
[9b. Steam Generator Pressure Difference ^(d)	1, 2	SR 3.3.1.1 SR 3.3.1.4 ^{(a)(b)} SR 3.3.1.8 ^{(a)(b)} SR 3.3.1.9	≤ [135] psid]
10. Loss of Load (turbine stop valve control oil pressure)	1 ^(f) (g)	SR 3.3.1.6 ^{(a)(b)} SR 3.3.1.7 SR 3.3.1.8 ^{(a)(b)}	≥ [800] psig

- (a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].
- (d) Trips may be bypassed when THERMAL POWER is < [1E-4]%. Bypass shall be automatically removed when THERMAL POWER is ≥ [1E-4]% RTP. During testing pursuant to LCO 3.4.17, trips may be bypassed below 5% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ 5% RTP.
- (f) Trip is not applicable and may be bypassed when THERMAL POWER is < [15]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [15]% RTP.
- (g) Trip is only applicable in MODE 1 ≥ [15]% RTP.

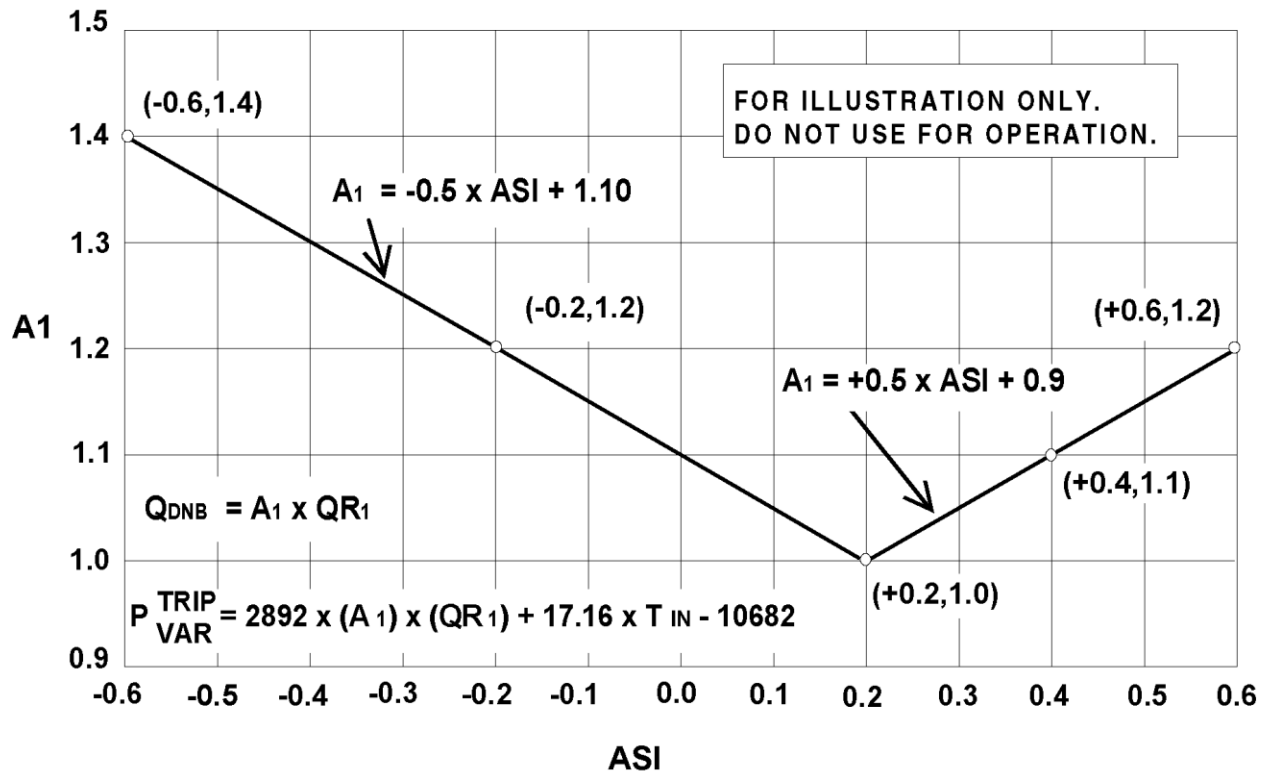


Figure 3.3.1-1 (page 1 of 1)
Thermal Margin/Low Pressure Trip Setpoint: ASI vs A1

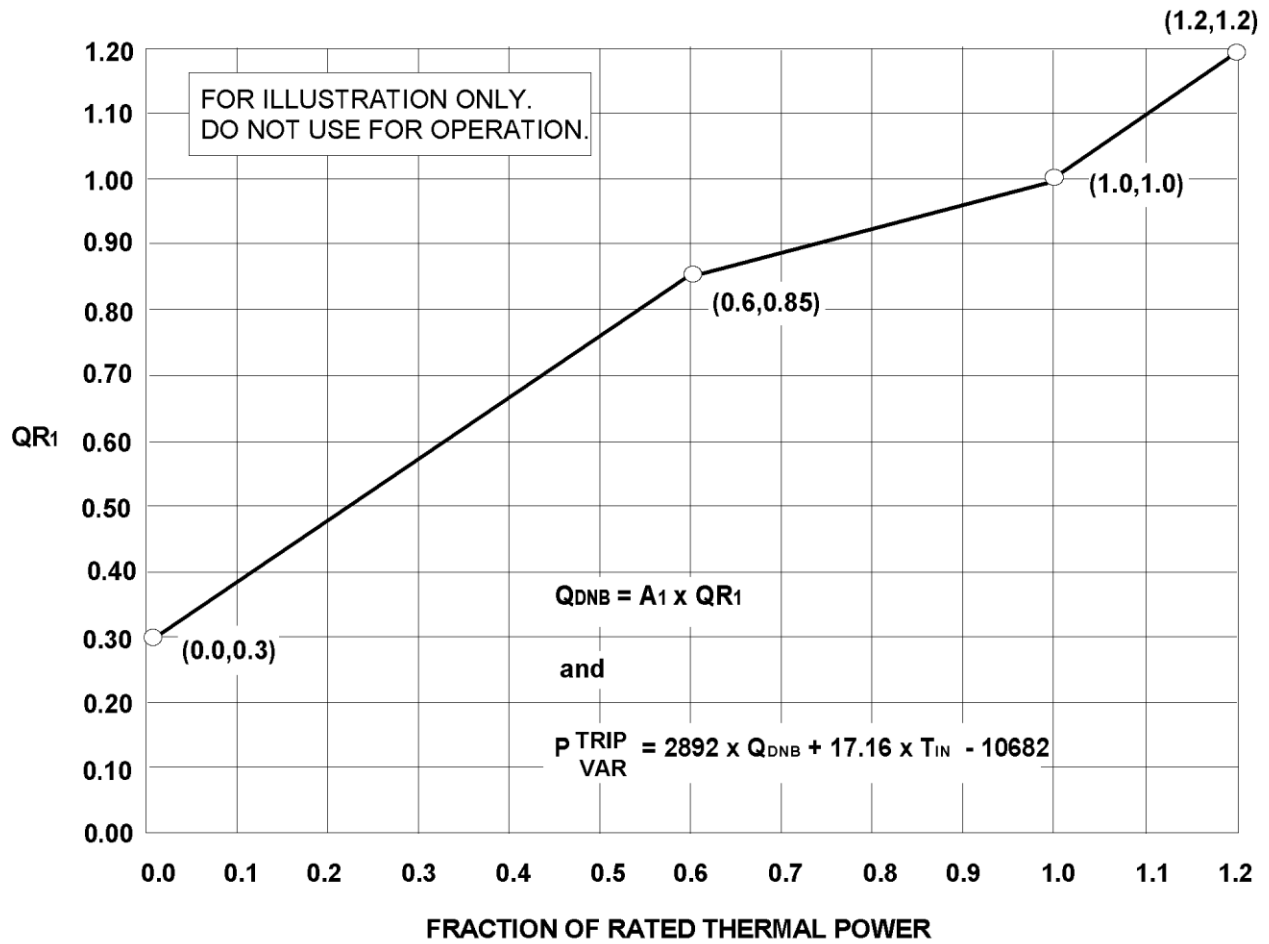


Figure 3.3.1-2 (page 1 of 1)
Thermal Margin/Low Pressure Trip Setpoint: Fraction of RTP vs QR 1

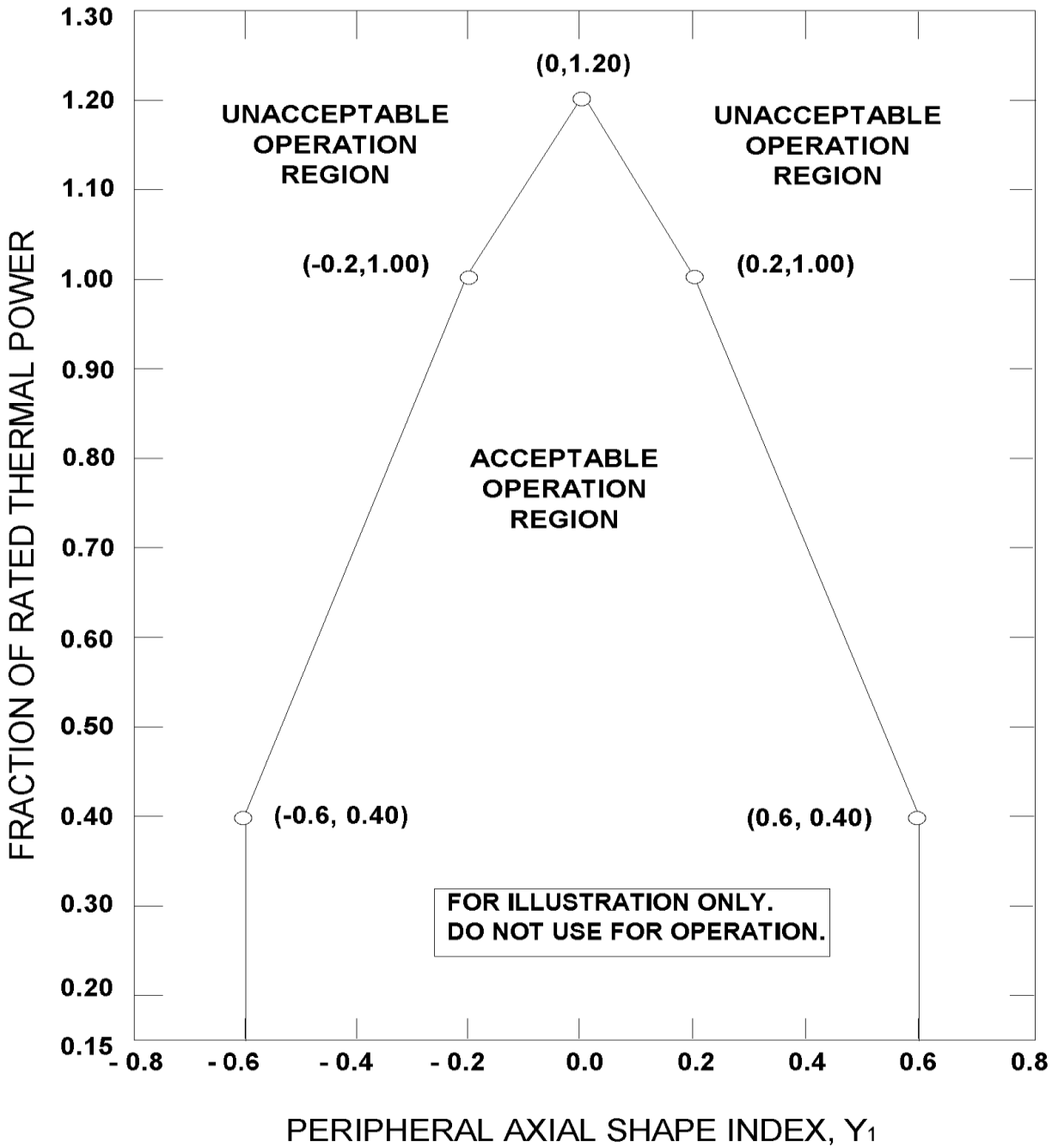


Figure 3.3.1-3 (page 1 of 1)
Peripheral Axial Shape Index, Y_1 vs Fraction of RTP

3.3 INSTRUMENTATION (Analog)

3.3.2 Reactor Protective System (RPS) Instrumentation - Shutdown (Analog)

LCO 3.3.2 Four Power Rate of Change - High RPS trip units and associated instrument and bypass removal channels shall be OPERABLE.

APPLICABILITY: MODES 3, 4, and 5, with any reactor trip circuit breakers (RTCBs) closed and any control element assembly capable of being withdrawn.

-----NOTE-----
Trip may be bypassed when THERMAL POWER is < [1E-4]% RTP.
Bypass shall be automatically removed when THERMAL POWER is
≥ [1E-4]% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Power Rate of Change - High trip unit or associated instrument channel inoperable.	A.1 Place affected trip unit in bypass or trip.	1 hour
	<u>AND</u>	
	A.2.1 Restore channel to OPERABLE status.	[48] hours
	<u>OR</u>	
	A.2.2 [Place affected trip unit in trip.	48 hours]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Two Power Rate of Change - High trip units or associated instrument channel inoperable.</p>	<p>B.1 Place one trip unit in bypass and place the other trip unit in trip.</p> <p><u>AND</u></p> <p>B.2 [Restore one trip unit to OPERABLE status.</p>	<p>1 hour</p> <p>48 hours]</p>
<p>C. One automatic bypass removal channel inoperable.</p>	<p>C.1 Disable bypass channel.</p> <p><u>OR</u></p> <p>C.2.1 Place affected trip unit in bypass or trip.</p> <p><u>AND</u></p> <p>C.2.2.1 Restore bypass removal channel and affected trip unit to OPERABLE status.</p> <p><u>OR</u></p> <p>C.2.2.2 [Place affected trip units in trip.</p>	<p>1 hour</p> <p>1 hour</p> <p>[48] hours</p> <p>48 hours]</p>
<p>D. Two automatic bypass removal channels inoperable.</p>	<p>D.1 Disable bypass channels.</p> <p><u>OR</u></p> <p>D.2.1 Place one affected trip unit in bypass and place the other in trip.</p> <p><u>AND</u></p>	<p>1 hour</p> <p>1 hour</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.2.2 Restore one bypass channel and the associated trip unit to OPERABLE status.	[48] hours
E. Required Action and associated Completion Time not met.	E.1 Open all RTCBs.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.2.1 Perform a CHANNEL CHECK of each wide range power channel.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.2.2 Perform a CHANNEL FUNCTIONAL TEST on the Power Rate of Change trip function.	[92 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.2.3 Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.</p>	<p>[92 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.2.4 -----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----</p> <p>Perform a CHANNEL CALIBRATION, including bypass removal functions with Allowable Value \leq [2.6] dpm.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.3 INSTRUMENTATION (Analog)

3.3.3 Reactor Protective System (RPS) Logic and Trip Initiation (Analog)

LCO 3.3.3 Six channels of RPS Matrix Logic, four channels of RPS Initiation Logic, [four] channels of reactor trip circuit breakers (RTCBs), and [four] channels of Manual Trip shall be OPERABLE.

APPLICABILITY: MODES 1 and 2, MODES 3, 4, and 5, with any RTCBs closed and any control element assemblies capable of being withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One Matrix Logic channel inoperable.</p> <p><u>OR</u></p> <p>Three Matrix Logic channels inoperable due to a common power source failure de-energizing three matrix power supplies.</p>	<p>A.1 Restore channel(s) to OPERABLE status.</p>	<p>48 hours</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.</p>	<p>B.1 Open the affected RTCBs.</p>	<p>1 hour</p>
<p>C. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.</p>	<p>C.1 Open the affected RTCBs.</p>	<p>48 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two channels of Manual Trip, RTCBs, or Initiation Logic affecting the same trip leg inoperable.	D.1 Open the affected RTCBs.	Immediately
E. Required Action and associated Completion Time of Condition A, B, or D not met. <u>OR</u> One or more Functions with two or more Manual Trip, Matrix Logic, Initiation Logic, or RTCB channels inoperable for reasons other than Condition A or D.	E.1 Be in MODE 3. <u>AND</u> E.2 Open all RTCBs.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.3.1 Perform a CHANNEL FUNCTIONAL TEST on each RTCB channel.	[[31] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.3.2	Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel.	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.3.3	Perform a CHANNEL FUNCTIONAL TEST on each RPS Manual Trip channel.	Once within 7 days prior to each reactor startup
SR 3.3.3.4	[Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB channel.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

3.3 INSTRUMENTATION (Analog)

3.3.4 Engineered Safety Features Actuation System (ESFAS) Instrumentation (Analog)

LCO 3.3.4 Four ESFAS trip units and associated instrument and bypass removal channels for each Function in Table 3.3.4-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each ESFAS Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [One Containment Spray Actuation Signal (CSAS) trip unit or associated instrument inoperable.	A.1 Place affected trip unit in bypass.	1 hour]
B. One or more Functions with one ESFAS trip unit or associated instrument channel (except CSAS) inoperable.	B.1 Place affected trip unit in bypass or trip. <u>AND</u> B.2.1 Restore channel to OPERABLE status. <u>OR</u>	1 hour [48] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.2 [Place affected trip unit in trip.	48 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]]
C. One or more Functions with two ESFAS trip units or associated instrument channels (except CSAS) inoperable.	C.1 Place one trip unit in bypass and place the other trip unit in trip. <u>AND</u> C.2 Restore one trip unit to OPERABLE status.	1 hour [48] hours
D. One or more Functions with one automatic bypass removal channel inoperable.	D.1 Disable bypass channel. <u>OR</u> D.2.1 Place affected trip units in bypass or trip. <u>AND</u> D.2.2.1 Restore bypass removal channel and affected trip units to OPERABLE status. <u>OR</u>	1 hour 1 hour [48] hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.2.2.2 [Place affected trip units in trip.	48 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]]
E. One or more Functions with two automatic bypass removal channels inoperable.	E.1 Disable bypass channels. <u>OR</u> E.2.1 Place one affected trip unit in bypass and place the other in trip for each affected ESFAS Function. <u>AND</u> E.2.2 [Restore one bypass channel and the associated trip unit to OPERABLE status for each affected trip Function.	1 hour 1 hour 48 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]]
F. Required Action and associated Completion Time not met.	F.1 Be in MODE 3. <u>AND</u> F.2 Be in MODE 4.	6 hours [12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform a CHANNEL CHECK of each ESFAS instrument channel.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.4.2	Perform a CHANNEL FUNCTIONAL TEST of each ESFAS instrument channel.	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.4.3	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.	Once within 92 days prior to each reactor startup
SR 3.3.4.4	Perform a CHANNEL CALIBRATION of each ESFAS instrument channel, including bypass removal functions.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.5	Verify ESF RESPONSE TIME is within limits.	[[18] months on a STAGGERED TEST BASIS <u>OR</u> In accordance with the Surveillance Frequency Control Program]

Table 3.3.4-1 (page 1 of 2)
Engineered Safety Features Actuation System Instrumentation

FUNCTION	MODES	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Safety Injection Actuation Signal (SIAS)			
a. Containment Pressure - High	1,2,3	SR 3.3.4.1 SR 3.3.4.2 ^{(a)(b)} SR 3.3.4.4 ^{(a)(b)} SR 3.3.4.5	≤ [19.0] psia
b. Pressurizer Pressure - Low ^(c)	1,2,3	SR 3.3.4.1 SR 3.3.4.2 ^{(a)(b)} SR 3.3.4.3 SR 3.3.4.4 ^{(a)(b)} SR 3.3.4.5	≥ [1687] psia
2. Containment Spray Actuation Signal ^(d)			
a. Containment Pressure - High	1,2,3	SR 3.3.4.1 SR 3.3.4.2 ^{(a)(b)} SR 3.3.4.4 ^{(a)(b)} SR 3.3.4.5	≤ [19.0] psia
3. Containment Isolation Actuation Signal			
a. Containment Pressure - High	1,2,3	SR 3.3.4.1 SR 3.3.4.2 ^{(a)(b)} SR 3.3.4.4 ^{(a)(b)} SR 3.3.4.5	≤ [19.0] psia
[b. Containment Radiation - High	1,2,3	SR 3.3.4.1 SR 3.3.4.2 ^{(a)(b)} SR 3.3.4.4 ^{(a)(b)} SR 3.3.4.5	≤ [2x Background]]

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

(b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].

(c) Pressurizer Pressure - Low may be manually bypassed when pressurizer pressure is < [1800] psia. The bypass shall be automatically removed whenever pressurizer pressure is ≥ [1800] psia.

[(d) SIAS is also required as a permissive to initiate containment spray.]

Table 3.3.4-1 (page 2 of 2)
Engineered Safety Features Actuation System Instrumentation

FUNCTION	MODES	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Main Steam Isolation Signal			
a. Steam Generator Pressure - Low ^(e)	1,2 ^(f) ,3 ^(f)	SR 3.3.4.1 SR 3.3.4.2 ^{(a)(b)} SR 3.3.4.3 SR 3.3.4.4 ^{(a)(b)} SR 3.3.4.5	≥ [495] psig
5. Recirculation Actuation Signal			
a. Refueling Water Tank Level - Low	1,2,3	[SR 3.3.4.1] SR 3.3.4.2 ^{(a)(b)} SR 3.3.4.4 ^{(a)(b)} SR 3.3.4.5	[≥ 24 inches and ≤ 30] inches above tank bottom
6. Auxiliary Feedwater Actuation Signal (AFAS)			
a. Steam Generator A Level - Low	1,2,3	SR 3.3.4.1 SR 3.3.4.2 ^{(a)(b)} SR 3.3.4.4 ^{(a)(b)} SR 3.3.4.5	≥ [45.7] %
b. Steam Generator B Level - Low	1,2,3	SR 3.3.4.1 SR 3.3.4.2 ^{(a)(b)} SR 3.3.4.4 ^{(a)(b)} SR 3.3.4.5	≥ [45.7] %
c. Steam Generator Pressure Difference - High (A > B) or (B > A)	1,2,3	SR 3.3.4.1 SR 3.3.4.2 ^{(a)(b)} SR 3.3.4.4 ^{(a)(b)} SR 3.3.4.5	≤ [48.3] psid

- (a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].
- (e) Steam Generator Pressure - Low may be manually bypassed when steam generator pressure is < [785] psia. The bypass shall be automatically removed whenever steam generator pressure is ≥ [785] psia.
- (f) Only the Main Steam Isolation Signal (MSIS) Function and the Steam Generator Pressure - Low and Containment Pressure - High signals are not required to be OPERABLE when all associated valves isolated by the MSIS Function are closed and [de-activated].

3.3 INSTRUMENTATION (Analog)

3.3.5 Engineered Safety Features Actuation System (ESFAS) Logic and Manual Trip (Analog)

LCO 3.3.5 Two ESFAS Manual Trip and two ESFAS Actuation Logic channels shall be OPERABLE for each ESFAS Function specified in Table 3.3.5-1.

APPLICABILITY: According to Table 3.3.5-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one Auxiliary Feedwater Actuation Signal (AFAS) Manual Trip or Actuation Logic channel inoperable.	A.1 Restore channel to OPERABLE status.	48 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
B. Two AFAS Manual Trip or Actuation Logic channels inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	6 hours [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with one Manual Trip or Actuation Logic channel inoperable except AFAS.	C.1 Restore channel to OPERABLE status.	48 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	6 hours 12 hours
E. One or more Functions with two Manual Trip or Actuation Logic channel inoperable except AFAS.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.5.1</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Testing of Actuation Logic shall include verification of the proper operation of each initiation relay. 2. Relays associated with plant equipment that cannot be operated during plant operation are only required to be tested during each MODE 5 entry exceeding 24 hours unless tested during the previous 6 months. <p>-----</p> <p>Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.</p>	<p>[[92] days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.5.2</p> <p>Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Trip channel.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

Table 3.3.5-1 (page 1 of 1)
Engineered Safety Features Actuation System Actuation Logic and
Manual Channel Applicability

FUNCTION	APPLICABLE MODES
1. Safety Injection Actuation Signal	1,2,3,[4]
2. Containment Spray Actuation Signal	1,2,3,[4]
3. Containment Isolation Actuation Signal	1,2,3,4
4. Main Steam Isolation Signal	1,2,3,4
5. Recirculation Actuation Signal	1,2,3,4
6. Auxiliary Feedwater Actuation Signal	1,2,3

3.3 INSTRUMENTATION (Analog)

3.3.6 Diesel Generator (DG) - Loss of Voltage Start (LOVS) (Analog)

LCO 3.3.6 [Four] channels of Loss of Voltage Function and [four] channels of Degraded Voltage Function auto-initiation instrumentation per DG shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel per DG inoperable.	A.1 Place channel in bypass or trip. <u>AND</u> A.2.1 Restore channel to OPERABLE status. <u>OR</u>	1 hour [48] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.2 [Place the channel in trip.	48 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]]
B. One or more Functions with two channels per DG inoperable.	B.1 Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation. <u>OR</u> B.2.1 Place one channel in bypass and the other channel in trip. <u>AND</u> B.2.2 Restore one channel to OPERABLE status.	1 hour 1 hour [48] hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
C. One or more Functions with more than two channels inoperable.	C.1 Restore all but two channels to OPERABLE status.	1 hour <u>[OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continue)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.6.1 [Perform CHANNEL CHECK.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.3.6.2 Perform CHANNEL FUNCTIONAL TEST.	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.6.3 Perform CHANNEL CALIBRATION with setpoint Allowable Values as follows:</p> <p>a. Degraded Voltage Function \geq [3180] V and \leq [3220] V</p> <p>Time delay: \geq [] seconds and \leq [] seconds at [] V and</p> <p>b. Loss of Voltage Function \geq [3180] V and \leq [3220] V</p> <p>Time delay: \geq [] seconds and \leq [] seconds at [] V.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.3 INSTRUMENTATION (Analog)

3.3.7 Containment Purge Isolation Signal (CPIS) (Analog)

LCO 3.3.7 [Four] CPIS containment radiation monitor channels and one CPIS automatic Actuation Logic and one Manual Trip train shall be OPERABLE.

APPLICABILITY: During movement of [recently] irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One radiation monitor channel inoperable.	A.1 Place the affected channel in trip.	4 hours
	<u>OR</u>	
	A.2 Suspend movement of [recently] irradiated fuel assemblies within containment.	Immediately
B. One required Manual Trip or automatic Actuation Logic train inoperable.	B.1 Place and maintain containment purge and exhaust valves in closed position.	Immediately
	<u>OR</u>	
More than one radiation monitor channel inoperable.	B.2 Enter applicable Conditions and Required Actions for affected valves of LCO 3.9.3, "Containment Penetrations," made inoperable by isolation instrumentation.	Immediately
<u>OR</u>		
Required Action and associated Completion Time of Condition A not met.		

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform a CHANNEL CHECK on each containment radiation monitor channel.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.7.2	Perform a CHANNEL FUNCTIONAL TEST on each containment radiation monitor channel. Verify CPIS high radiation setpoint is less than or equal to the Allowable Value of [220 mR/hr].	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.7.3	-----NOTE----- Testing of Actuation Logic shall include verification of the proper operation of each initiation relay. ----- Perform a CHANNEL FUNCTIONAL TEST on each CPIS Actuation Logic channel.	[[31] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.7.4	Perform a CHANNEL CALIBRATION on each containment radiation monitor channel.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.7.5	Perform a CHANNEL FUNCTIONAL TEST on each CPIS Manual Trip channel.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.7.6	Verify CPIS response time of each containment radiation channel is within limits.	[[18] months on a STAGGERED TEST BASIS <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.3 INSTRUMENTATION (Analog)

3.3.8 Control Room Isolation Signal (CRIS) (Analog)

LCO 3.3.8 One CRIS channel shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, [5, and 6],
During movement of [recently] irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. CRIS Manual Trip, Actuation Logic, or [one or more required channels of particulate/iodine or gaseous] radiation monitors inoperable in MODE 1, 2, 3, or 4.</p>	<p>A.1 -----NOTE----- Place Control Room Emergency Air Cleanup System (CREACS) in toxic gas protection mode if automatic transfer to toxic gas protection mode inoperable. ----- Place one CREACS train in emergency radiation protection mode.</p>	<p>1 hour</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 3. <u>AND</u> B.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.</p>	<p>6 hours 12 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. CRIS Manual Trip, Actuation Logic, or [one or more required channels of particulate/iodine or gaseous] radiation monitors inoperable [in MODE 5 or 6], during movement of [recently] irradiated fuel assemblies.</p>	<p>C.1 -----NOTE----- Place CREACS in toxic gas protection mode if automatic transfer to toxic gas protection mode inoperable. ----- Place one CREACS train in emergency radiation protection mode.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>C.2.1 Suspend movement of [recently] irradiated fuel assemblies.</p>	<p>Immediately</p>
	<p><u>AND</u></p> <p>C.2.2 -----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ----- Suspend positive reactivity additions.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform a CHANNEL CHECK on the required control room radiation monitor channel.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.8.2	Perform a CHANNEL FUNCTIONAL TEST on the required CRIS radiation monitor channel. Verify CRIS high radiation setpoint is less than or equal to the Allowable Value of [6E4] cpm above normal background.	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.8.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Surveillance of Actuation Logic shall include verification of the proper operation of each initiation relay. 2. Relays associated with plant equipment that cannot be operated during plant operation are only required to be tested during each MODE 5 entry exceeding 24 hours unless tested within the previous 6 months. <p>-----</p> <p>Perform a CHANNEL FUNCTIONAL TEST on the required CRIS Actuation Logic channel.</p>	<p>[[31] days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.8.4</p> <p>Perform a CHANNEL CALIBRATION on the required CRIS radiation monitor channel.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.5	Perform a CHANNEL FUNCTIONAL TEST on the required CRIS Manual Trip channel.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.3.8.6	[Verify response time of required CRIS channel is within limits.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]]</p>

3.3 INSTRUMENTATION (Analog)

3.3.9 Chemical and Volume Control System (CVCS) Isolation Signal (Analog)

LCO 3.3.9 Four channels of West Penetration Room/Letdown Heat Exchanger Room pressure sensing and two Actuation Logic channels shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Actuation Logic channel inoperable.	A.1 Restore the channel to OPERABLE status.	48 hours
B. One CVCS isolation instrument channel inoperable.	B.1 Place the channel in bypass or trip.	1 hour
	<u>AND</u>	
	B.2.1 Restore the channel to OPERABLE status.	48 hours
	<u>OR</u>	
	B.2.2 Place the channel in trip.	48 hours
C. Two CVCS isolation instrument channels inoperable.	C.1 Place one channel in bypass and place the other channel in trip.	1 hour
	<u>AND</u>	
	C.2 Restore one channel to OPERABLE status.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	<u>AND</u> D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	12 hours
E. Two Actuation Logic channels inoperable.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.9.1 Perform a CHANNEL CHECK.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY						
<p>SR 3.3.9.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Testing of Actuation Logic shall include the verification of the proper operation of each initiation relay. 2. Relays associated with plant equipment that cannot be operated during plant operation are only required to be tested during each MODE 5 entry exceeding 24 hours unless tested within the previous 6 months. <p>-----</p> <p>Perform a CHANNEL FUNCTIONAL TEST on each CVCS isolation channel with setpoints in accordance with the following Allowable Values:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 60%;">West Penetration Room Pressure - High</td> <td style="width: 10%; text-align: center;">≤ .5 psig</td> <td style="width: 30%;"></td> </tr> <tr> <td>Letdown Heat Exchanger Room Pressure - High</td> <td style="text-align: center;">≤ .5 psig</td> <td></td> </tr> </table>	West Penetration Room Pressure - High	≤ .5 psig		Letdown Heat Exchanger Room Pressure - High	≤ .5 psig		<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
West Penetration Room Pressure - High	≤ .5 psig						
Letdown Heat Exchanger Room Pressure - High	≤ .5 psig						
<p>SR 3.3.9.3</p> <p>Perform a CHANNEL CALIBRATION on each CVCS isolation pressure indicating channel.</p>	<p>[18 months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>						

3.3 INSTRUMENTATION (Analog)

3.3.10 Shield Building Filtration Actuation Signal (SBFAS) (Analog)

LCO 3.3.10 Two channels of SBFAS automatic and two channels of Manual Trip shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Manual Trip or Actuation Logic channel inoperable.	A.1 Restore the channel to OPERABLE status.	48 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.10.1	Perform a CHANNEL FUNCTIONAL TEST on each SBFAS automatic actuation channel.	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.10.2	Perform a CHANNEL FUNCTIONAL TEST on each SBFAS Manual Trip channel.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.3 INSTRUMENTATION (Analog)

3.3.11 Post Accident Monitoring (PAM) Instrumentation (Analog)

LCO 3.3.11 The PAM instrumentation for each Function in Table 3.3.11-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.5.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.11-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.11-1.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 Be in MODE 4.	12 hours
F. [As required by Required Action D.1 and referenced in Table 3.3.11-1.	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately]

SURVEILLANCE REQUIREMENTS

-----NOTE-----

These SRs apply to each PAM instrumentation Function in Table 3.3.11-1.

SURVEILLANCE	FREQUENCY
SR 3.3.11.1 Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.11.2 -----NOTE----- -- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- - Perform CHANNEL CALIBRATION.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>

Table 3.3.11-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1. [Logarithmic] Neutron Flux	2	E
2. Reactor Coolant System Hot Leg Temperature	2 per loop	E
3. Reactor Coolant System Cold Leg Temperature	2 per loop	E
4. Reactor Coolant System Pressure (wide range)	2	E
5. Reactor Vessel Water Level	2	[F]
6. Containment Sump Water Level (wide range)	2	E
7. Containment Pressure (wide range)	2	E
8. Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path ^{(a)(b)}	E
9. Containment Area Radiation (high range)	2	[F]
10. Pressurize Level	2	E
11. Steam Generator Water Level (wide range)	2 per steam generator	E
12. Condensate Storage Tank Level	2	E
13. Core Exit Temperature - Quadrant [1]	2 ^(c)	E
14. Core Exit Temperature - Quadrant [2]	2 ^(c)	E
15. Core Exit Temperature - Quadrant [3]	2 ^(c)	E
16. Core Exit Temperature - Quadrant [4]	2 ^(c)	E
17. Auxiliary Feedwater Flow	2	E

- (a) Not required for isolation valves whose associated penetration is isolated by at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.
- (b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.
- (c) A channel consists of two or more core exit thermocouples.

-----REVIEWER'S NOTE-----

Table 3.3.11-1 shall be amended for each unit as necessary to list:

- 1. All Regulatory Guide 1.97, Type A instruments and
- 2. All Regulatory Guide 1.97, Category I, non-Type A instruments specified in the unit's Regulatory Guide 1.97, Safety Evaluation Report.

3.3 INSTRUMENTATION (Analog)

3.3.12 Remote Shutdown System (Analog)

LCO 3.3.12 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Functions to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	[12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.12.1 [Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.12.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.12.3	-----NOTE----- Neutron detectors are excluded from the CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION for each required instrumentation channel.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.12.4	[Perform CHANNEL FUNCTIONAL TEST of the reactor trip circuit breaker open/closed indication.	[18 months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

3.3 INSTRUMENTATION (Analog)

3.3.13 [Logarithmic] Power Monitoring Channels (Analog)

LCO 3.3.13 Two channels of [logarithmic] power level monitoring instrumentation shall be OPERABLE.

APPLICABILITY: MODES 3, 4, and 5, with the reactor trip circuit breakers open or Control Element Assembly (CEA) Drive System not capable of CEA withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more required channel(s) inoperable.</p>	<p>A.1 -----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ----- Suspend all operations involving positive reactivity additions.</p> <p><u>AND</u></p> <p>A.2 Perform SDM verification in accordance with SR 3.1.1.1.</p>	<p>Immediately</p> <p>4 hours</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.13.1	Perform CHANNEL CHECK.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.13.2	Perform CHANNEL FUNCTIONAL TEST.	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.13.3	<p>-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----</p> <p>Perform CHANNEL CALIBRATION.</p>	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.3 INSTRUMENTATION (Digital)

3.3.1 Reactor Protective System (RPS) Instrumentation - Operating (Digital)

LCO 3.3.1 Four RPS trip and bypass removal channels for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each RPS Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one automatic RPS trip channel inoperable.	A.1 Place channel in bypass or trip. <u>AND</u> A.2 Restore channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
B. One or more Functions with two automatic RPS trip channels inoperable.	B.1 Place one channel in bypass and the other in trip.	1 hour
C. One or more Functions with one automatic bypass removal channel inoperable.	C.1 Disable bypass channel. <u>OR</u>	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>C.2.1 Place affected automatic trip channel in bypass or trip.</p> <p><u>AND</u></p> <p>C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.</p>	<p>1 hour</p> <p>Prior to entering MODE 2 following next MODE 5 entry</p>
<p>D. One or more Functions with two automatic bypass removal channels inoperable.</p>	<p>D.1 Disable bypass channels.</p> <p><u>OR</u></p> <p>D.2 Place one affected automatic trip channel in bypass and place the other in trip.</p>	<p>1 hour</p> <p>1 hour</p>
<p>E. One or more core protection calculator (CPC) channels with a cabinet high temperature alarm.</p>	<p>E.1 Perform CHANNEL FUNCTIONAL TEST on affected CPC.</p>	<p>12 hours</p>
<p>F. One or more CPC channels with three or more autorestarts during a 12 hour period.</p>	<p>F.1 Perform CHANNEL FUNCTIONAL TEST on affected CPC.</p>	<p>24 hours</p>
<p>G. Required Action and associated Completion Time not met.</p>	<p>G.1 Be in MODE 3.</p>	<p>6 hours</p>

SURVEILLANCE REQUIREMENTS

-----NOTE-----
Refer to Table 3.3.1-1 to determine which SR shall be performed for each RPS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform a CHANNEL CHECK of each RPS instrument channel except Loss of Load.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.1.2	-----NOTE----- Not required to be performed until 12 hours after THERMAL POWER \geq 70% RTP. ----- Verify total Reactor Coolant System (RCS) flow rate as indicated by each CPC is less than or equal to the RCS total flow rate. If necessary, adjust the CPC addressable constant flow coefficients such that each CPC indicated flow is less than or equal to the RCS flow rate.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.1.3	Check the CPC auto restart count.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.4</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Not required to be performed until 12 hours after THERMAL POWER \geq 20% RTP. 2. The daily calibration may be suspended during PHYSICS TESTS, provided the calibration is performed upon reaching each major test power plateau and prior to proceeding to the next major test power plateau. <p>-----</p> <p>Perform calibration (heat balance only) and adjust the linear power level signals and the CPC addressable constant multipliers to make the CPC ΔT power and CPC nuclear power calculations agree with the calorimetric, if the absolute difference is \geq [2]%. </p>	<p>[24 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.1.5</p> <p>-----NOTE-----</p> <p>Not required to be performed until 12 hours after THERMAL POWER \geq 70% RTP.</p> <p>-----</p> <p>Verify total RCS flow rate indicated by each CPC is less than or equal to the RCS flow determined by calorimetric calculations.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.6</p> <p>-----NOTE----- Not required to be performed until 12 hours after THERMAL POWER \geq 15% RTP. -----</p> <p>Verify linear power subchannel gains of the excore detectors are consistent with the values used to establish the shape annealing matrix elements in the CPCs.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.1.7</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. The CPC CHANNEL FUNCTIONAL TEST shall include verification that the correct values of addressable constants are installed in each OPERABLE CPC. 2. Not required to be performed for logarithmic power level channels until 2 hours after reducing logarithmic power below 1E-4% and only if reactor trip circuit breakers (RTCBs) are closed. <p>-----</p> <p>Perform CHANNEL FUNCTIONAL TEST on each channel except Loss of Load and power range neutron flux.</p>	<p>[92 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.8</p> <p>-----NOTE----- Neutron detectors are excluded from the CHANNEL CALIBRATION. -----</p> <p>Perform CHANNEL CALIBRATION of the power range neutron flux channels.</p>	<p>[92 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.1.9</p> <p>-----NOTE----- [Not required to be performed until 2 hours after THERMAL POWER \geq 55% RTP. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST for Loss of Load Function.</p>	<p>[92 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.10	<p>-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----</p> <p>Perform CHANNEL CALIBRATION on each channel, including bypass removal functions.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.3.1.11	<p>Perform a CHANNEL FUNCTIONAL TEST on each CPC channel.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.3.1.12	<p>Using the incore detectors, verify the shape annealing matrix elements to be used by the CPCs.</p>	<p>Once after each refueling prior to exceeding 70% RTP</p>
SR 3.3.1.13	<p>Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.</p>	<p>Once within 92 days prior to each reactor startup</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.14</p> <p>-----NOTE----- Neutron detectors are excluded. -----</p> <p>Verify RPS RESPONSE TIME is within limits.</p>	<p>[[18] months on a STAGGERED TEST BASIS</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

Table 3.3.1-1 (page 1 of 4)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Linear Power Level - High	1,2	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.8 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.14	≤ [111.3]% RTP
2. Logarithmic Power Level - High ^(c)	2	SR 3.3.1.1 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.13 SR 3.3.1.14	≤ [.96]%
3. Pressurizer Pressure - High	1,2	SR 3.3.1.1 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.14	≤ [2389] psia
4. Pressurizer Pressure - Low ^(d)	1,2	SR 3.3.1.1 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.13 SR 3.3.1.14	≥ [1763] psig
5. Containment Pressure - High	1,2	SR 3.3.1.1 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.14	≤ [3.14] psig

- (a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].
- (c) Bypass may be enabled when logarithmic power is > [1E-4]% and shall be capable of automatic removal whenever logarithmic power is > [1E-4]%. Bypass shall be removed prior to reducing logarithmic power to a value ≤ [1E-4]%. Trip may be manually bypassed during physics testing pursuant to LCO 3.4.17, "RCS Loops - Test Exceptions."
- (d) The setpoint may be decreased to a minimum value of [300] psia, as pressurizer pressure is reduced, provided the margin between pressurizer pressure and the setpoint is maintained ≤ [400] psi. Bypass may be enabled when pressurizer pressure is < [500] psia and shall be capable of automatic removal whenever pressurizer pressure is < [500] psia. Bypass shall be removed prior to raising pressurizer pressure to a value ≥ [500] psia. The setpoint shall be automatically increased to the normal setpoint as pressurizer pressure is increased.

Table 3.3.1-1 (page 2 of 4)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Steam Generator #1 Pressure - Low	1,2	SR 3.3.1.1 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.14	≥ [711] psia
7. Steam Generator #2 Pressure - Low	1,2	SR 3.3.1.1 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.14	≥ [711] psia
8. Steam Generator #1 Level - Low	1,2	SR 3.3.1.1 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.14	≥ [24.23]%
9. Steam Generator #2 Level - Low	1,2	SR 3.3.1.1 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.14	≥ [24.23]%
[10. Reactor Coolant Flow, Steam Generator #1 - Low ^(e)	1,2	SR 3.3.1.1 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} [SR 3.3.1.13] SR 3.3.1.14	Ramp: ≤ [0.231] psid/sec. Floor: ≥ [12.1] psid Step: ≤ [7.231] psid]

- (a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].
- (e) Bypass may be enabled when logarithmic power is < [1E-04]% and shall be capable of automatic removal whenever logarithmic power is < [1E-4]%. Bypass shall be removed prior to raising logarithmic power to a value ≥ [1E-4]%. During testing pursuant to LCO 3.4.17, bypass may be enabled when THERMAL POWER is < [5]% RTP and shall be capable of automatic removal whenever THERMAL POWER is < [5]% RTP. Bypass shall be removed above 5% RTP.

Table 3.3.1-1 (page 3 of 4)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
[11. Reactor Coolant Flow, Steam Generator #2 - Low ^(e)	1,2	SR 3.3.1.1 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} [SR 3.3.1.13] SR 3.3.1.14	Ramp: ≤ [0.231] psid/sec. Floor: ≥ [12.1] psid Step: ≤ [7.231] psid]
[12. Loss of Load (turbine stop valve control oil pressure) ^(f)	1	SR 3.3.1.9 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} [SR 3.3.1.13]	≥ [100] psig]
13. Local Power Density - High ^(e)	1,2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.11 ^{(a)(b)} SR 3.3.1.12 SR 3.3.1.13 SR 3.3.1.14	≤ [21.0] kW/ft

- (a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].
- (e) Bypass may be enabled when logarithmic power is < [1E-04]% and shall be capable of automatic removal whenever logarithmic power is < [1E-4]%. Bypass shall be removed prior to raising logarithmic power to a value ≥ [1E-4]%. During testing pursuant to LCO 3.4.17, bypass may be enabled when THERMAL POWER is < [5]% RTP and shall be capable of automatic removal whenever THERMAL POWER is < [5]% RTP. Bypass shall be removed above 5% RTP.
- (f) Bypass may be enabled when THERMAL POWER is < [55]% RTP and shall be capable of automatic removal whenever THERMAL POWER is < [55]% RTP. Bypass shall be removed prior to raising THERMAL POWER to a value ≥ [55]% RTP.

Table 3.3.1-1 (page 4 of 4)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
14. Departure From Nucleate Boiling Ratio (DNBR) - Low ^(e)	1,2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 ^{(a)(b)} SR 3.3.1.10 ^{(a)(b)} SR 3.3.1.11 ^{(a)(b)} SR 3.3.1.12 SR 3.3.1.13 SR 3.3.1.14	≥ [1.31]

- (a) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (b) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].
- (e) Bypass may be enabled when logarithmic power is < [1E-04]% and shall be capable of automatic removal whenever logarithmic power is < [1E-4]%. Bypass shall be removed prior to raising logarithmic power to a value ≥ [1E-4]%. During testing pursuant to LCO 3.4.17, bypass may be enabled when THERMAL POWER is < [5]% RTP and shall be capable of automatic removal whenever THERMAL POWER is < [5]% RTP. Bypass shall be removed above 5% RTP.

3.3 INSTRUMENTATION (Digital)

3.3.2 Reactor Protective System (RPS) Instrumentation - Shutdown (Digital)

LCO 3.3.2 Four RPS Logarithmic Power Level - High trip channels and associated instrument and bypass removal channels shall be OPERABLE.

APPLICABILITY: MODES 3, 4, and 5, with any reactor trip circuit breakers (RTCBs) closed and any control element assembly capable of being withdrawn.

-----NOTE-----
Bypass may be enabled when logarithmic power is > [1E-4]% and shall be capable of automatic removal whenever logarithmic power is > [1E-4]%. Bypass shall be removed prior to reducing logarithmic power to a value \leq [1E-4]%.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RPS logarithmic power level trip channel inoperable.	A.1 Place channel in bypass or trip. <u>AND</u> A.2 Restore channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
B. Two RPS logarithmic power level trip channels inoperable.	B.1 Place one channel in bypass and place the other in trip.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION
C. One automatic bypass removal channel inoperable.	C.1 Disable bypass channel. <u>OR</u> C.2.1 Place affected automatic trip channel in bypass or trip. <u>AND</u> C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	1 hour 1 hour Prior to entering MODE 2 following next MODE 5 entry
D. Two automatic bypass removal channels inoperable.	D.1 Disable bypass channels. <u>OR</u> D.2 Place one affected automatic trip channel in bypass and place the other in trip.	1 hour 1 hour
E. Required Action and associated Completion Time not met.	E.1 Open all RTCBs.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform a CHANNEL CHECK of each logarithmic power channel.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.2.2	Perform a CHANNEL FUNCTIONAL TEST on each logarithmic power channel.	[92 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.2.3	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.	Once within 92 days prior to each reactor startup
SR 3.3.2.4	<p>-----NOTE-----</p> <p>Neutron detectors are excluded from CHANNEL CALIBRATION.</p> <p>-----</p> <p>Perform a CHANNEL CALIBRATION on each logarithmic power channel, including bypass removal function with Allowable Value for trip channels \leq [.93]%. </p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.5	Verify RPS RESPONSE TIME is within limits.	[[18] months on a STAGGERED TEST BASIS <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.3 INSTRUMENTATION (Digital)

3.3.3 Control Element Assembly Calculators (CEACs) (Digital)

LCO 3.3.3 Two CEACs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CEAC inoperable.	A.1 Perform SR 3.1.4.1. <u>AND</u> A.2 Restore CEAC to OPERABLE status.	Once per 4 hours 7 days
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Both CEACs inoperable.	B.1 Verify the departure from nucleate boiling ratio requirement of LCO 3.2.4, "Departure from Nucleate Boiling Ratio (DNBR)," is met [and the Reactor Power Cutback System is disabled]. <u>AND</u>	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.2 Verify all full length and part length control element assembly (CEA) groups are fully withdrawn and maintained fully withdrawn, except during Surveillance testing pursuant to SR 3.1.4.3 [or for control, when CEA group #6 may be inserted to a maximum of 127.5 inches].</p> <p><u>AND</u></p> <p>B.3 Verify the "RSPT/CEAC Inoperable" addressable constant in each core protection calculator (CPC) is set to indicate that both CEACs are inoperable.</p> <p><u>AND</u></p> <p>B.4 Verify the Control Element Drive Mechanism Control System is placed in "OFF" and maintained in "OFF," except during CEA motion permitted by Required Action B.2.</p> <p><u>AND</u></p> <p>B.5 Perform SR 3.1.4.1.</p>	<p>4 hours</p> <p>4 hours</p> <p>4 hours</p> <p>Once per 4 hours</p>
<p>C. Receipt of a CPC channel B or C cabinet high temperature alarm.</p>	<p>C.1 Perform CHANNEL FUNCTIONAL TEST on affected CEAC(s).</p>	<p>12 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or two CEACs with three or more auto restarts during a 12 hour period.	D.1 Perform CHANNEL FUNCTIONAL TEST on affected CEAC.	24 hours
E. Required Action and associated Completion Time of Condition B, C, or D not met.	E.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.3.1 Perform a CHANNEL CHECK.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.3.2 Check the CEAC auto restart count.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.3.3	Perform a CHANNEL FUNCTIONAL TEST.	[92 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.3.4	Perform a CHANNEL CALIBRATION.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.3.5	Perform a CHANNEL FUNCTIONAL TEST.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.3.6	Verify the isolation characteristics of each CEAC isolation amplifier and each optical isolator for CEAC to CPC data transfer.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.3 INSTRUMENTATION (Digital)

3.3.4 Reactor Protective System (RPS) Logic and Trip Initiation (Digital)

LCO 3.3.4 Six channels of RPS Matrix Logic, four channels of RPS Initiation Logic, [four channels of reactor trip circuit breakers (RTCBs),] and four channels of Manual Trip shall be OPERABLE.

APPLICABILITY: MODES 1 and 2, MODES 3, 4, and 5, with any RTCBs closed and any control element assemblies capable of being withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One Matrix Logic channel inoperable.</p> <p><u>OR</u></p> <p>Three Matrix Logic channels inoperable due to a common power source failure de-energizing three matrix power supplies.</p>	<p>A.1 Restore channel(s) to OPERABLE status.</p>	<p>48 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.</p>	<p>B.1 Open the affected RTCBs.</p>	<p>1 hour</p>
<p>C. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.</p>	<p>C.1 Open the affected RTCBs.</p>	<p>48 hours</p>
<p>D. Two channels of Manual Trip, RTCBs, or Initiation Logic affecting the same trip leg inoperable.</p>	<p>D.1 Open the affected RTCBs.</p>	<p>Immediately</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. Required Action and associated Completion Time of Condition A, B, or D not met.</p> <p><u>OR</u></p> <p>One or more Functions with more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel inoperable for reasons other than Condition A or D.</p>	<p>E.1 Be in MODE 3.</p>	<p>6 hours</p>
	<p><u>AND</u></p> <p>E.2 Open all RTCBs.</p>	<p>6 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.4.1 Perform a CHANNEL FUNCTIONAL TEST on each RTCB channel.</p>	<p>[[31] days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.4.2 Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel.</p>	<p>[[92] days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.3	Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.3.4.4	Perform a CHANNEL FUNCTIONAL TEST on each RPS Manual Trip channel.	Once within 7 days prior to each reactor startup

3.3 INSTRUMENTATION (Digital)

3.3.5 Engineered Safety Features Actuation System (ESFAS) Instrumentation (Digital)

LCO 3.3.5 Four ESFAS trip and bypass removal channels for each Function in Table 3.3.5-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5-1.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each ESFAS Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one automatic ESFAS trip channel inoperable.	A.1 Place channel in bypass or trip. <u>AND</u> A.2 Restore channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
B. One or more Functions with two automatic ESFAS trip channels inoperable.	B.1 Place one channel in bypass and the other in trip.	1 hour
C. One or more Functions with one automatic bypass removal channel inoperable.	C.1 Disable bypass channel. <u>OR</u>	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>C.2.1 Place affected automatic trip channel in bypass or trip.</p> <p><u>AND</u></p> <p>C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.</p>	<p>1 hour</p> <p>Prior to entering MODE 2 following next MODE 5 entry</p>
<p>D. One or more Functions with two automatic bypass removal channels inoperable.</p>	<p>D.1 Disable bypass channels.</p> <p><u>OR</u></p> <p>D.2 Place one affected automatic trip channel in bypass and place the other in trip.</p>	<p>1 hour</p> <p>1 hour</p>
<p>E. Required Action and associated Completion Time not met.</p>	<p>E.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>E.2 Be in MODE 4.</p>	<p>6 hours</p> <p>[12] hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform a CHANNEL CHECK of each ESFAS channel.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.5.2	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. 2. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and the as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]. <p>-----</p> <p>Perform a CHANNEL FUNCTIONAL TEST of each ESFAS channel.</p>	[92 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.5.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. 2. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and the as-left tolerances are specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference]. <p>-----</p> <p>Perform a CHANNEL CALIBRATION of each ESFAS channel, including bypass removal functions.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.5.4	Verify ESF RESPONSE TIME is within limits.	[[18] months on a STAGGERED TEST BASIS <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.5.5	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal channel.	Once within 92 days prior to each reactor startup

Table 3.3.5A-1 (page 1 of 2)
Engineered Safety Features Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	ALLOWABLE VALUE
1. Safety Injection Actuation Signal ^(a)		
a. Containment Pressure - High	1,2,3	≤ [3.14] psig
b. Pressurizer Pressure - Low ^(b)	1,2,3	≥ [1763] psia
2. Containment Spray Actuation Signal		
a. Containment Pressure - High High	1,2,3	≤ [16.83] psia
b. Automatic SIAS	1,2,3	NA
3. Containment Isolation Actuation Signal		
a. Containment Pressure - High	1,2,3	≤ [3.14] psig
b. Pressurizer Pressure - Low ^(b)	1,2,3	≥ [1763] psia
4. Main Steam Isolation Signal		
a. Steam Generator Pressure - Low ^(c)	1,2 ^(d) ,3 ^(d)	≥ [711] psig
b. Containment Pressure - High	1,2 ^(d) ,3 ^(d)	≤ [3.14] psig
5. Recirculation Actuation Signal		
a. Refueling Water Storage Tank Level – Low	1,2,3	[≥ 17.73 and ≤ 19.27]%

- (a) Automatic SIAS also initiates a Containment Cooling Actuation Signal (CCAS).
- (b) The setpoint may be decreased to a minimum value of [300] psia, as pressurizer pressure is reduced, provided the margin between pressurizer pressure and the setpoint is maintained ≤ [400] psia. Trips may be bypassed when pressurizer pressure is < [400] psia. Bypass shall be automatically removed when pressurizer pressure is ≥ [500] psia. The setpoint shall be automatically increased to the normal setpoint as pressurizer pressure is increased.
- (c) The setpoint may be decreased as steam pressure is reduced, provided the margin between steam pressure and the setpoint is maintained ≤ [200] psig. The setpoint shall be automatically increased to the normal setpoint as steam pressure is increased.
- (d) The Main Steam Isolation Signal (MSIS) Function (Steam Generator Pressure - Low and Containment Pressure - High signals) is not required to be OPERABLE when all associated valves isolated by the MSIS Function are closed and [de-activated].

Table 3.3.5A-1 (page 2 of 2)
Engineered Safety Features Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	ALLOWABLE VALUE
6. Emergency Feedwater Actuation Signal SG #1 (EFAS-1)		
a. Steam Generator Level - Low	1,2,3	≥ [24.23]%
b. SG Pressure Difference - High	1,2,3	≤ [66.25] psid
[c. Steam Generator Pressure - Low	1,2,3	≥ [711] psig]
7. Emergency Feedwater Actuation Signal SG #2 (EFAS-2)		
a. Steam Generator Level - Low	1,2,3	≥ [24.23]%
b. SG Pressure Difference - High	1,2,3	≤ [66.25] psid
[c. Steam Generator Pressure – Low	1,2,3	≥ [711] psig]

3.3 INSTRUMENTATION (Digital)

3.3.6 Engineered Safety Features Actuation System (ESFAS) Logic and Manual Trip (Digital)

LCO 3.3.6 Six channels of ESFAS Matrix Logic, four channels of ESFAS Initiation Logic, two channels of Actuation Logic, and two channels of Manual Trip shall be OPERABLE for each Function in Table 3.3.6-1.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- This action also applies when three Matrix Logic channels are inoperable due to a common power source failure de-energizing three matrix power supplies. ----- One or more Functions with one Matrix Logic channel inoperable.</p>	<p>A.1 Restore channel to OPERABLE status.</p>	<p>48 hours</p>
<p>B. One or more Functions with one Manual Trip or Initiation Logic channel inoperable.</p>	<p>B.1 Restore channel to OPERABLE status.</p>	<p>48 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with two Initiation Logic channels affecting the same trip leg inoperable.	C.1 Open at least one contact in the affected trip leg of both ESFAS Actuation Logics.	Immediately
	<u>AND</u> C.2 Restore channels to OPERABLE status.	48 hours
D. One or more Functions with one Actuation Logic channel inoperable.	D.1 -----NOTE----- One channel of Actuation Logic may be bypassed for up to 1 hour for Surveillances, provided the other channel is OPERABLE. ----- Restore channel to OPERABLE status.	48 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
E. Two Actuation Logic channels inoperable. <u>OR</u> Required Action and associated Completion Time not met.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.6.1</p> <p>-----NOTE----- Testing of Actuation Logic shall include the verification of the proper operation of each initiation relay. -----</p> <p>Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.</p>	<p>[[92] days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.6.2</p> <p>-----NOTE----- Relays exempt from testing during operation shall be tested during each MODE 5 entry exceeding 24 hours unless tested during the previous 6 months. -----</p> <p>Perform a subgroup relay test of each Actuation Logic channel, which includes the de-energization of each subgroup relay and verification of the OPERABILITY of each subgroup relay.</p>	<p>[[184] days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.6.3</p> <p>Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Trip channel.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

Table 3.3.6-1 (page 1 of 2)
Engineered Safety Features Actuation System Logic and Manual Trip Applicability

FUNCTION	APPLICABLE MODES
1. Safety Injection Actuation Signal	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3,4
c. Actuation Logic	1,2,3,4
d. Manual Trip	1,2,3,4
2. Containment Isolation Actuation Signal	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3,4
c. Actuation Logic	1,2,3,4
d. Manual Trip	1,2,3,4
3. Containment Cooling Actuation Signal ^(a)	
a. Initiation Logic	1,2,3,4
b. Actuation Logic	1,2,3,4
c. Manual Trip	1,2,3,4
4. Recirculation Actuation Signal	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3,4
c. Actuation Logic	1,2,3,4
d. Manual Trip	1,2,3,4
5. Containment Spray Actuation Signal ^(b)	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3
c. Actuation Logic	1,2,3

(a) Automatic SIAS also initiates CCAS.

(b) Automatic SIAS also required for automatic CSAS initiation.

Table 3.3.6-1 (page 2 of 2)
Engineered Safety Features Actuation System Logic and Manual Trip Applicability

FUNCTION	APPLICABLE MODES
5. Containment Spray Actuation Signal ^(b) (continued)	
d. Manual Trip	1,2,3
6. Main Steam Isolation Signal	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3
c. Actuation Logic	1,2,3
d. Manual Trip	1,2,3
7. Emergency Feedwater Actuation Signal SG #1 (EFAS-1)	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3
c. Actuation Logic	1,2,3
d. Manual Trip	1,2,3
8. Emergency Feedwater Actuation Signal SG #2 (EFAS-2)	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3
c. Actuation Logic	1,2,3
d. Manual Trip	1,2,3

(b) Automatic SIAS also required for automatic CSAS initiation.

3.3 INSTRUMENTATION (Digital)

3.3.7 Diesel Generator (DG) - Loss of Voltage Start (LOVS) (Digital)

LCO 3.3.7 [Four] channels of Loss of Voltage Function and [four] channels of Degraded Voltage Function auto-initiation instrumentation per DG shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated DG is required to be OPERABLE by LCO 3.8.2,
"AC Sources - Shutdown."

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel per DG inoperable.	A.1 Place channel in bypass or trip	1 hour
	<u>AND</u> A.2 Restore channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry
B. One or more Functions with two channels per DG inoperable.	B.1 Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation. <u>OR</u>	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 Place one channel in bypass and the other channel in trip.	1 hour
C. One or more Functions with more than two channels inoperable.	C.1 Restore all but two channels to OPERABLE status.	1 hour
D. Required Action and associated Completion Time not met.	D.1 Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.7.1 [Perform CHANNEL CHECK.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.7.2	Perform CHANNEL FUNCTIONAL TEST.	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.7.3	Perform CHANNEL CALIBRATION with setpoint Allowable Values as follows: a. Degraded Voltage Function \geq [3180] V and \leq [3220] V Time delay: \geq [] seconds and \leq [] seconds at [] V and b. Loss of Voltage Function \geq [3180] V and \leq [3220] V Time delay: \geq [] seconds and \leq [] seconds at [] V.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.3 INSTRUMENTATION (Digital)

3.3.8 Containment Purge Isolation Signal (CPIS) (Digital)

LCO 3.3.8 One CPIS channel shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
During movement of [recently] irradiated fuel assemblies within
containment.

-----NOTE-----
Only required when the penetration is not isolated by at least one closed
and de-activated automatic valve, closed manual valve, or blind flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CPIS Manual Trip, Actuation Logic, or one or more required channels of radiation monitors inoperable in MODES 1, 2, 3, and 4.	A.1 Enter applicable Conditions and Required Actions for affected valves of LCO 3.6.3, "Containment Isolation Valves," made inoperable by CPIS instrumentation.	Immediately
B. Required Action and associated Completion Time not met in MODE 1, 2, 3, or 4.	B.1 Be in MODE 3.	6 hours
	<p><u>AND</u></p> <p>B.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. -----</p> <p>Be in MODE 4.</p>	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. CPIS Manual Trip, Actuation Logic, or one or more required channels of radiation monitors inoperable during movement of [recently] irradiated fuel assemblies within containment.	C.1 Place and maintain containment purge and exhaust valves in closed position.	Immediately
	<u>OR</u> C.2 Suspend movement of [recently] irradiated fuel assemblies in containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.8.1 Perform a CHANNEL CHECK on required containment area and gaseous radiation monitor channel.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.8.2 Perform a CHANNEL CHECK on required containment particulate and iodine radiation monitor channel.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.8.3</p> <p>-----NOTE----- Only required to be met in MODES 1, 2, 3, and 4. -----</p> <p>Perform a CHANNEL FUNCTIONAL TEST on each required containment radiation monitor channel. Verify setpoint [Allowable Value] is in accordance with the following:</p> <p>Containment Gaseous Monitor: ≤ [2X background] Containment Particulate Monitor: ≤ [2X background] Containment Area Gamma Monitor: ≤ [325 mR/hr]</p>	<p>[92 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.8.4</p> <p>-----NOTE----- Only required to be met during movement of irradiated fuel assemblies within containment. -----</p> <p>Perform a CHANNEL FUNCTIONAL TEST on required containment radiation monitor channel. Verify setpoint [Allowable Value] is in accordance with the following:</p> <p>Containment Gaseous Monitor: ≤ [2X background] Containment Particulate Monitor: ≤ [2X background] Containment Iodine Monitor: ≤ [2X background] Containment Area Gamma Monitor: ≤ [2X background]</p>	<p>[92 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.8.5</p> <p>-----NOTE----- Surveillance of Actuation Logic shall include the actuation of each initiation relay and verification of the proper operation of each initiation relay. -----</p> <p>Perform a CHANNEL FUNCTIONAL TEST on required CPIS Actuation Logic channel.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.8.6</p> <p>Perform a CHANNEL CALIBRATION on required containment radiation monitor channel.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.8.7</p> <p>Verify that response time of required CPIS channel is within limits.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.8	Perform CHANNEL FUNCTIONAL TEST on required CPIS Manual Trip channel.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.3 INSTRUMENTATION (Digital)

3.3.9 Control Room Isolation Signal (CRIS) (Digital)

LCO 3.3.9 One CRIS channel shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, [5, and 6],
During movement of [recently] irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. CRIS Manual Trip, Actuation Logic, or [one or more required channels of particulate/iodine or gaseous] radiation monitors inoperable in MODE 1, 2, 3, or 4.</p>	<p>A.1 -----NOTE----- Place Control Room Emergency Air Cleanup System (CREACS) in toxic gas protection mode if automatic transfer to toxic gas protection mode inoperable. ----- Place one CREACS train in emergency radiation protection mode.</p>	<p>1 hour</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 3. <u>AND</u> B.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.</p>	<p>6 hours 12 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. CRIS Manual Trip, Actuation Logic, or required particulate/iodine or gaseous radiation monitors inoperable [in MODE 5 or 6], or during movement of [recently] irradiated fuel assemblies.</p>	<p>C.1 -----NOTE----- Place CREACS in toxic gas protection mode if automatic transfer to toxic gas protection mode inoperable. ----- Place one CREACS train in emergency radiation protection mode.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>C.2.1 Suspend movement of [recently] irradiated fuel assemblies.</p>	<p>Immediately</p>
	<p><u>AND</u></p> <p>C.2.2 -----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ----- Suspend positive reactivity additions.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform a CHANNEL CHECK on the required control room radiation monitor channel.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.9.2	Perform a CHANNEL FUNCTIONAL TEST on required CRIS radiation monitor channel. Verify CRIS high radiation setpoint [Allowable Value] is \leq [6E4] cpm above normal background.	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.9.3	<p>-----NOTES-----</p> <ol style="list-style-type: none"> Surveillance of Actuation Logic shall include the verification of the proper operation of each initiation relay. Relays associated with plant equipment that cannot be operated during plant operation are required to be tested during each MODE 5 entry exceeding 24 hours unless tested within the previous 6 months. <p>-----</p> <p>Perform a CHANNEL FUNCTIONAL TEST on required CRIS Actuation Logic channel.</p>	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.9.4	Perform a CHANNEL CALIBRATION on required CRIS radiation monitor channel.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.9.5	Perform a CHANNEL FUNCTIONAL TEST on required CRIS Manual Trip channel.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.9.6	[Verify that response time of required CRIS channel is within limits.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

3.3 INSTRUMENTATION (Digital)

3.3.10 Fuel Handling Isolation Signal (FHIS) (Digital)

LCO 3.3.10 One FHIS channel shall be OPERABLE.

APPLICABILITY: [MODES 1, 2, 3, and 4,]
During movement of [recently] irradiated fuel in the fuel building.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. [Actuation Logic, Manual Trip, or [one or more required channels of particulate/iodine and gaseous] radiation monitors inoperable in MODE 1, 2, 3, or 4.	A.1 Place one OPERABLE Fuel Building Air Cleanup System (FBACS) train in operation.	1 hour]
B. [Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours]
C. Actuation Logic, Manual Trip, or [one or more required channels of particulate/iodine and gaseous] radiation monitors inoperable during movement of [recently] irradiated fuel assemblies.	C.1 Place one OPERABLE FBACS train in operation. <u>OR</u> C.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.10.1 Perform a CHANNEL CHECK on required FHIS radiation monitor channel.</p>	<p>[12 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.10.2 Perform a CHANNEL FUNCTIONAL TEST on required FHIS radiation monitor channel. Verify radiation monitor setpoint [Allowable Values]:</p> <p style="padding-left: 40px;">[Airborne Particulate/ Iodine: \leq [6E4] cpm above background]</p> <p style="padding-left: 40px;">Airborne Gaseous: \leq [6E4] cpm above background</p>	<p>[92 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.3.10.3 -----NOTE-----</p> <p style="padding-left: 40px;">Testing of Actuation Logic shall include the actuation of each initiation relay and verification of the proper operation of each ignition relay.</p> <p style="padding-left: 40px;">-----</p> <p style="padding-left: 40px;">Perform a CHANNEL FUNCTIONAL TEST on required FHIS Actuation Logic channel.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.10.4	Perform a CHANNEL FUNCTIONAL TEST on required FHIS Manual Trip logic.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.3.10.5	Perform a CHANNEL CALIBRATION on required FHIS radiation monitor channel.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.3.10.6	[Verify response time of required FHIS channel is within limits.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]]</p>

3.3 INSTRUMENTATION (Digital)

3.3.11 Post Accident Monitoring (PAM) Instrumentation (Digital)

LCO 3.3.11 The PAM instrumentation for each Function in Table 3.3.11-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.5.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.11-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.11-1.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 Be in MODE 4.	12 hours
F. [As required by Required Action D.1 and referenced in Table 3.3.11-1.	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately]

SURVEILLANCE REQUIREMENTS

-----NOTE-----

These SRs apply to each PAM instrumentation Function in Table 3.3.11-1.

SURVEILLANCE	FREQUENCY
SR 3.3.11.1 Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.11.2</p> <p>-----NOTE----- Neutron detectors are excluded from the CHANNEL CALIBRATION. -----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

Table 3.3.11-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1. [Wide Range] Neutron Flux	2	E
2. Reactor Coolant System Hot Leg Temperature	2 per loop	E
3. Reactor Coolant System Cold Leg Temperature	2 per loop	E
4. Reactor Coolant System Pressure (wide range)	2	E
5. Reactor Vessel Water Level	2	[F]
6. Containment Sump Water Level (wide range)	2	E
7. Containment Pressure (wide range)	2	E
8. Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path ^{(a)(b)}	E
9. Containment Area Radiation (high range)	2	[F]
10. Pressurizer Level	2	E
11. Steam Generator Water Level (wide range)	2 per steam generator	E
12. Condensate Storage Tank Level	2	E
13. Core Exit Temperature - Quadrant [1]	2 ^(c)	E
14. Core Exit Temperature - Quadrant [2]	2 ^(c)	E
15. Core Exit Temperature - Quadrant [3]	2 ^(c)	E
16. Core Exit Temperature - Quadrant [4]	2 ^(c)	E
17. Emergency Feedwater Flow	2	E

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

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

(c) A channel consists of two or more core exit thermocouples.

-----REVIEWER'S NOTE-----

Table 3.3.11-1 shall be amended for each unit as necessary to list:

1. All Regulatory Guide 1.97, Type A instruments and
2. All Regulatory Guide 1.97, Category I, non-Type A instruments specified in the unit's Regulatory Guide 1.97, Safety Evaluation Report.

3.3 INSTRUMENTATION (Digital)

3.3.12 Remote Shutdown System (Digital)

LCO 3.3.12 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Functions to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	[12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.12.1	[Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.3.12.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.12.3	<p>-----NOTE----- Neutron detectors are excluded from the CHANNEL CALIBRATION. -----</p> <p>Perform CHANNEL CALIBRATION for each required instrumentation channel.</p>	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.12.4 [Perform CHANNEL FUNCTIONAL TEST of the reactor trip circuit breaker open/closed indication.	[18 months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

3.3 INSTRUMENTATION (Digital)

3.3.13 [Logarithmic] Power Monitoring Channels (Digital)

LCO 3.3.13 Two channels of [logarithmic] power level monitoring instrumentation shall be OPERABLE.

APPLICABILITY: MODES 3, 4, and 5, with the reactor trip circuit breakers open or Control Element Assembly (CEA) Drive System not capable of CEA withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more required channels inoperable.</p>	<p>A.1 -----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ----- Suspend all operations involving positive reactivity additions.</p> <p><u>AND</u></p> <p>A.2 Perform SDM verification in accordance with SR 3.1.1.1.</p>	<p>Immediately</p> <p>4 hours</p> <p>AND</p> <p>Once per 12 hours thereafter</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.13.1	Perform CHANNEL CHECK.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.13.2	Perform CHANNEL FUNCTIONAL TEST.	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.3.13.3	<p>-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----</p> <p>Perform CHANNEL CALIBRATION.</p>	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS Pressure, Temperature, and Flow [Departure from Nucleate Boiling (DNB)] Limits

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

-----NOTE-----
Pressurizer pressure limit does not apply during:

- a. THERMAL POWER ramp > 5% RTP per minute or
 - b. THERMAL POWER step > 10% RTP.
-

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer pressure or RCS flow rate not within limits.	A.1 Restore parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
C. RCS cold leg temperature not within limits.	C.1 Restore cold leg temperature to within limits.	2 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Reduce THERMAL POWER to \leq [30]% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure is within the limits specified in the COLR.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.4.1.2	Verify RCS cold leg temperature is within the limits specified in the COLR.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.4.1.3	<p>-----NOTE----- Only required to be met in MODE 1. -----</p> <p>Verify RCS total flow rate is greater than or equal to the limits specified in the COLR.</p>	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.4.1.4</p> <p>-----NOTE----- Not required to be performed until [24] hours after ≥ [90]% RTP. -----</p> <p>Verify by precision heat balance that RCS total flow rate is within the limits specified in the COLR.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2 Each RCS loop average temperature (T_{avg}) shall be $\geq [520]^{\circ}\text{F}$.

APPLICABILITY: MODE 1 with T_{avg} in one or more RCS loops $< [535]^{\circ}\text{F}$,
MODE 2 with T_{avg} in one or more RCS loops $< [535]^{\circ}\text{F}$ and $K_{eff} \geq 1.0$.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{avg} in one or more RCS loops not within limit.	A.1 Be in MODE 2 with $K_{eff} < 1.0$.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop $\geq [520]^{\circ}\text{F}$.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3 RCS pressure, RCS temperature, and RCS heatup and cooldown rates shall be maintained within the limits specified in the PTLR.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Required Action A.2 shall be completed whenever this Condition is entered. ----- Requirements of LCO not met in MODE 1, 2, 3, or 4.</p>	<p>A.1 Restore parameter(s) to within limits. <u>AND</u> A.2 Determine RCS is acceptable for continued operation.</p>	<p>30 minutes 72 hours</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5 with RCS pressure < [500] psig.</p>	<p>6 hours 36 hours</p>
<p>C. -----NOTE----- Required Action C.2 shall be completed whenever this Condition is entered. ----- Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.</p>	<p>C.1 Initiate action to restore parameter(s) to within limits. <u>AND</u> C.2 Determine RCS is acceptable for continued operation.</p>	<p>Immediately Prior to entering MODE 4</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.3.1</p> <p>-----NOTE----- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. -----</p> <p>Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates within limits specified in the PTLR.</p>	<p>[30 minutes</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops - MODES 1 and 2

LCO 3.4.4 Two RCS loops shall be OPERABLE and in operation.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO not met.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.4.1 Verify each RCS loop is in operation.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODE 3

LCO 3.4.5 [Two] RCS loops shall be OPERABLE and one RCS loop shall be in operation.

-----NOTE-----

All reactor coolant pumps may be removed from operation for ≤ 1 hour per 8 hour period, provided:

- a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
-

APPLICABILITY: MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RCS loop inoperable.	A.1 Restore RCS loop to OPERABLE status.	72 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Two RCS loops inoperable.</p> <p><u>OR</u></p> <p>Required RCS loop not in operation.</p>	<p>C.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>C.2 Initiate action to restore one RCS loop to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.5.1 Verify one RCS loop is in operation.</p>	<p>[12 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.4.5.2 Verify secondary side water level in each steam generator \geq [25]%. </p>	<p>[12 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.4.5.3</p> <p>-----NOTE----- Not required to be performed until 24 hours after a required pump is not in operation. -----</p> <p>Verify correct breaker alignment and indicated power available to each required pump.</p>	<p>[7 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops - MODE 4

LCO 3.4.6 Two loops or trains consisting of any combination of RCS loops and shutdown cooling (SDC) trains shall be OPERABLE and one loop or train shall be in operation.

- NOTES-----
1. All reactor coolant pumps (RCPs) and SDC pumps may be removed from operation for ≤ 1 hour per 8 hour period, provided:
 - a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
 2. No RCP shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless:
 - a. Pressurizer water level is $< [60]\%$ or
 - b. Secondary side water temperature in each steam generator (SG) is $< [100]^{\circ}\text{F}$ above each of the RCS cold leg temperatures.
-

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required loop inoperable.	A.1 Initiate action to restore a second loop or train to OPERABLE status. <u>AND</u>	Immediately

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.6.2	Verify secondary side water level in required SG(s) is \geq [25]%. 	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.4.6.3	-----NOTE----- Not required to be performed until 24 hours after a required pump is not in operation. ----- Verify correct breaker alignment and indicated power available to each required pump.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.4.6.4	-----NOTE----- Not required to be performed until 12 hours after entering MODE 4. ----- Verify required SDC train locations susceptible to gas accumulation are sufficiently filled with water.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7 One shutdown cooling (SDC) train shall be OPERABLE and in operation and either:

- a. One additional SDC train shall be OPERABLE or
- b. The secondary side water level of each steam generator (SG) shall be \geq [25%].

-----NOTES-----

1. The SDC pump of the train in operation may be removed from operation for \leq 1 hour per 8 hour period provided:
 - a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
 - b. Core outlet temperature is maintained at \geq 10°F below saturation temperature.
2. One SDC train may be inoperable for up to 2 hours for surveillance testing provided that the other SDC train is OPERABLE and in operation.
3. No reactor coolant pump (RCP) shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless:
 - a. The pressurizer water level is $<$ [60]% or
 - b. The secondary side water temperature in each SG is $<$ [100]°F above each of the RCS cold leg temperatures.
4. All SDC trains may not be in operation during planned heatup to MODE 4 when at least one RCS loop is in operation.

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One required SDC train inoperable.</p> <p><u>AND</u></p> <p>One SDC train OPERABLE.</p>	<p>A.1 Initiate action to restore a second SDC train to OPERABLE status.</p> <p><u>OR</u></p> <p>A.2 Initiate action to restore required SGs secondary side water level to within limit.</p>	<p>Immediately</p> <p>Immediately</p>
<p>B. One or more required SGs with secondary side water level not within limit.</p> <p><u>AND</u></p> <p>One SDC train OPERABLE.</p>	<p>B.1 Initiate action to restore a second SDC train to OPERABLE status.</p> <p><u>OR</u></p> <p>B.2 Initiate action to restore required SGs secondary side water level to within limit.</p>	<p>Immediately</p> <p>Immediately</p>
<p>C. No required SDC trains OPERABLE.</p> <p><u>OR</u></p> <p>Required SDC train not in operation.</p>	<p>C.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>C.2 Initiate action to restore one SDC train to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.7.4	Verify required SDC train locations susceptible to gas accumulation are sufficiently filled with water.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two shutdown cooling (SDC) trains shall be OPERABLE and one SDC train shall be in operation.

-----NOTES-----

1. All SDC pumps may be removed from operation for ≤ 15 minutes when switching from one train to another provided:
 - [a. The core outlet temperature is maintained $> 10^{\circ}\text{F}$ below saturation temperature,]
 - b. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 and
 - c. No draining operations to further reduce the RCS water volume are permitted.

2. One SDC train may be inoperable for ≤ 2 hours for surveillance testing provided the other SDC train is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required SDC train inoperable.	A.1 Initiate action to restore SDC train to OPERABLE status.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No required SDC train OPERABLE. <u>OR</u> Required SDC train not in operation.	B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1. <u>AND</u> B.2 Initiate action to restore one SDC train to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.8.1 Verify required SDC train is in operation.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.4.8.2</p> <p>-----NOTE----- Not required to be performed until 24 hours after a required pump is not in operation. -----</p> <p>Verify correct breaker alignment and indicated power available to each required SDC pump.</p>	<p>[7 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.4.8.3</p> <p>Verify SDC train locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

- a. Pressurizer water level < [60]% and
- b. Two groups of pressurizer heaters OPERABLE with the capacity [of each group] \geq [150] kW [and capable of being powered from an emergency power supply].

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Be in MODE 3 with reactor trip breakers open.	6 hours
	<u>AND</u> A.2 Be in MODE 4.	[12] hours
B. One required group of pressurizer heaters inoperable.	B.1 Restore required group of pressurizer heaters to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>-----REVIEWER'S NOTE----- The frequency for performing pressurizer heater capacity testing shall be either 18 months or 92 days, depending on whether or not the plant has dedicated safety-related heaters. For dedicated safety-related heaters, which do not normally operate, 92 days is applied. For non-dedicated safety-related heaters, which normally operate, 18 months is applied. -----</p> <p>SR 3.4.9.2 Verify capacity of each required group of pressurizer heaters \geq [150] kW.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.4.9.3 [Verify required pressurizer heaters are capable of being powered from an emergency power supply.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 [Two] pressurizer safety valves shall be OPERABLE with lift settings \geq [2475] psia and \leq [2525] psia.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures greater than the LTOP enable temperature specified in the PTLR.

-----NOTE-----

The lift settings are not required to be within LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for [36] hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes
B. Required Action and associated Completion Time not met. <u>OR</u> Two [or more] pressurizer safety valves inoperable.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR.	6 hours [24] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with the INSERVICE TESTING PROGRAM. Following testing, lift settings shall be within $\pm 1\%$.	In accordance with the INSERVICE TESTING PROGRAM

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each PORV and each block valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more PORVs inoperable and capable of being manually cycled.	A.1 Close and maintain power to associated block valve.	1 hour
B. One PORV inoperable and not capable of being manually cycled.	B.1 Close associated block valve. <u>AND</u> B.2 Remove power from associated block valve. <u>AND</u> B.3 Restore PORV to OPERABLE status.	1 hour 1 hour 72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One block valve inoperable.</p>	<p>C.1 Place associated PORV in manual control.</p> <p><u>AND</u></p> <p>C.2 Restore block valve to OPERABLE status.</p>	<p>1 hour</p> <p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>D. Required Action and associated Completion Time of Condition A, B, or C not met.</p>	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>6 hours</p> <p>[12] hours</p>
<p>E. ----- NOTE ----- Not applicable when second PORV intentionally made inoperable. ----- Two PORVs inoperable and not capable of being manually cycled.</p>	<p>E.1 Close associated block valves.</p> <p><u>AND</u></p> <p>E.2 Remove power from associated block valves.</p> <p><u>AND</u></p> <p>E.3 Verify LCO 3.7.5, "Auxiliary Feedwater System," is met.</p> <p><u>AND</u></p> <p>E.4 Restore at least one PORV to OPERABLE status.</p>	<p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>8 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Actions and Associated Completion Times of Condition E not met.</p>	<p>F.1 Be in MODE 3. <u>AND</u> F.2 Be in MODE 4.</p>	<p>6 hours [12] hours</p>
<p>G. ----- NOTE ----- Not applicable when second block valve intentionally made inoperable. ----- Two block valves inoperable.</p>	<p>G.1 Verify LCO 3.7.5, "Auxiliary Feedwater System," is met. <u>AND</u> G.2 Restore at least one block valve to OPERABLE status.</p>	<p>1 hour 8 hours</p>
<p>H. Required Action and associated Completion Time of Condition G not met.</p>	<p>H.1 Be in MODE 3. <u>AND</u> H.2 Be in MODE 4.</p>	<p>6 hours [12] hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.11.1</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Not required to be performed with block valve closed in accordance with the Required Actions of this LCO. 2. Only required to be performed in MODES 1 and 2. <p>-----</p> <p>Perform a complete cycle of each block valve.</p>	<p>[[92] days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.4.11.2</p> <p>-----NOTE-----</p> <p>Only required to be performed in MODES 1 and 2.</p> <p>-----</p> <p>Perform a complete cycle of each PORV.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.11.3	[Perform a complete cycle of each solenoid air control valve and check valve on the air accumulators in PORV control systems.	<p>[[18] months]</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]]</p>
SR 3.4.11.4	[Verify PORVs and block valve(s) are capable of being powered from an emergency power supply.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]]</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Low Temperature Overpressure Protection (LTOP) System

LCO 3.4.12 An LTOP System shall be OPERABLE with a maximum of one high pressure safety injection (HPSI) pump and one charging pump capable of injecting into the RCS and the safety injection tanks (SITs) isolated, and:

-----NOTES-----

1. [Two charging pumps] may be made capable of injecting for ≤ 1 hour for pump swap operations.
2. SIT may be unisolated when SIT pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.

- a. Two OPERABLE power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR or
- b. The RCS depressurized and an RCS vent of $\geq [1.3]$ square inches.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is less than or equal to the LTOP enable temperature specified in the PTLR, MODE 5, MODE 6 when the reactor vessel head is on.

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to PORVs when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Two or more HPSI pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of one HPSI pump capable of injecting into the RCS.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two or more charging pumps capable of injecting into the RCS.	B.1 Initiate action to verify a maximum of one charging pump capable of injecting into the RCS.	Immediately
C. A SIT not isolated when SIT pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	C.1 Isolate affected SIT.	1 hour
D. Required Action and associated Completion Time of Condition C not met.	D.1 Increase RCS cold leg temperature to > [175]°F. <u>OR</u> D.2 Depressurize affected SIT to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours 12 hours
E. One required PORV inoperable in MODE 4.	E.1 Restore required PORV to OPERABLE status.	7 days
F. One required PORV inoperable in MODE 5 or 6.	F.1 Restore required PORV to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Two required PORVs inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A, [B], D, E, or F not met.</p> <p><u>OR</u></p> <p>LTOP System inoperable for any reason other than Condition A, [B], C, D, E, or F.</p>	<p>G.1 Depressurize RCS and establish RCS vent of $\geq [1.3]$ square inches.</p>	<p>12 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.12.1 Verify a maximum of one HPSI pump is capable of injecting into the RCS.</p>	<p>[12 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.2	Verify a maximum of one charging pump is capable of injecting into the RCS.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.4.12.3	Verify each SIT is isolated.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.4.12.4	Verify required RCS vent \geq [1.3] square inches is open.	[12 hours for unlocked open vent valve(s) <u>AND</u> 31 days for other vent path(s) <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.5	Verify PORV block valve is open for each required PORV.	[72 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.4.12.6	<p>-----NOTE-----</p> <p>Not required to be performed until [12] hours after decreasing RCS cold leg temperature to less than or equal to the LTOP enable temperature specified in the PTLR.</p> <p>-----</p> <p>Perform CHANNEL FUNCTIONAL TEST on each required PORV, excluding actuation.</p>	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.4.12.7	Perform CHANNEL CALIBRATION on each required PORV actuation channel.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE,
- b. 1 gpm unidentified LEAKAGE,
- c. 10 gpm identified LEAKAGE, and
- d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressure boundary LEAKAGE exists.	A.1 Isolate affected component, pipe, or vessel from the RCS by use of a closed manual valve, closed and de-activated automatic valve, blind flange, or check valve.	4 hours
B. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	B.1 Reduce LEAKAGE to within limits.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time not met.</p> <p><u>OR</u></p> <p>Primary to secondary LEAKAGE not within limit.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.13.1</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Not required to be performed until 12 hours after establishment of steady state operation. 2. Not applicable to primary to secondary LEAKAGE. <p>-----</p> <p>Verify RCS operational LEAKAGE is within limits by performance of RCS water inventory balance.</p>	<p>[72 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.4.13.2</p> <p>-----NOTE----- Not required to be performed until 12 hours after establishment of steady state operation. -----</p> <p>Verify primary to secondary LEAKAGE is ≤ 150 gallons per day through any one SG.</p>	<p>[72 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.14 Leakage from each RCS PIV shall be within limits.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except valves in the shutdown cooling (SDC) flow path when in,
or during the transition to or from, the SDC mode of operation.

ACTIONS

-----NOTES-----

1. Separate Condition entry is allowed for each flow path.
 2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more flow paths with leakage from one or more RCS PIVs not within limit.</p>	<p>-----NOTE----- Each valve used to satisfy Required Action A.1 and Required Action A.2 must have been verified to meet SR 3.4.14.1 and be on the RCS pressure boundary [or the high pressure portion of the system]. -----</p> <p>A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve.</p> <p><u>AND</u></p>	<p>4 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.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.</p> <p>[or]</p> <p>Restore RCS PIV to within limits.</p>	72 hours]
<p>B. Required Action and associated Completion Time for Condition A not met.</p>	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>C. [Shutdown Cooling (SDC) System autoclosure interlock function inoperable.</p>	<p>C.1 Isolate the affected penetration by use of one closed manual or deactivated automatic valve.</p>	4 hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.14.1</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Not required to be performed in MODES 3 and 4. 2. Not required to be performed on the RCS PIVs located in the SDC flow path when in the shutdown cooling mode of operation. 3. RCS PIVs actuated during the performance of this Surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided. <p>-----</p> <p>Verify leakage from each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure $\geq [2215]$ psia and $\leq [2255]$ psia.</p>	<p>In accordance with the INSERVICE TESTING PROGRAM, and [[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p> <p><u>AND</u></p> <p>Prior to entering MODE 2 determine the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months</p> <p><u>AND</u></p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
	<p>Within 24 hours following valve actuation due to automatic or manual action or flow through the valve</p>
<p>SR 3.4.14.2 -----NOTE----- [Not required to be met when the SDC System autoclosure interlock is disabled in accordance with SR 3.4.12.7. ----- Verify SDC System autoclosure interlock prevents the valves from being opened with a simulated or actual RCS pressure signal \geq [425] psig.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]</p>
<p>SR 3.4.14.3 -----NOTE----- [Not required to be met when the SDC System autoclosure interlock is disabled in accordance with SR 3.4.12.7. ----- Verify SDC System autoclosure interlock causes the valves to close automatically with a simulated or actual RCS pressure signal \geq [600] psig.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 [Two of] the following RCS leakage detection instrumentation shall be OPERABLE:

- a. One containment sump monitor,
- b. One containment atmosphere radioactivity monitor (gaseous or particulate), and
- [c. One containment air cooler condensate flow rate monitor.]

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment sump monitor inoperable.	<p>A.1 -----NOTE----- Not required until 12 hours after establishment of steady state operation. -----</p> <p>Perform SR 3.4.13.1.</p> <p><u>AND</u></p> <p>A.2 Restore containment sump monitor to OPERABLE status.</p>	<p>Once per 24 hours</p> <p>30 days</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Only applicable when the containment atmosphere gaseous radiation monitor is the only OPERABLE monitor. -----</p> <p>D. Containment sump monitor inoperable.</p> <p><u>AND</u></p> <p>[Containment air cooler condensate flow rate monitor inoperable.]</p>	<p>D.1 Analyze grab samples of the containment atmosphere.</p> <p><u>AND</u></p> <p>D.2.1 Restore containment sump monitor to OPERABLE status.</p> <p><u>OR</u></p> <p>[D.2.2 Restore containment air cooler condensate flow rate monitor to OPERABLE status.]</p>	<p>Once per 12 hours</p> <p>7 days</p> <p>7 days</p>
<p>E. [Required containment atmosphere radioactivity monitor inoperable.</p> <p><u>AND</u></p> <p>[Containment air cooler condensate flow rate monitor inoperable.]</p>	<p>E.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status.</p> <p><u>OR</u></p> <p>E.2 Restore containment air cooler condensate flow rate monitor to OPERABLE status.</p>	<p>30 days</p> <p>30 days]</p>
<p>F. Required Action and associated Completion Time not met.</p>	<p>F.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>F.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>G. All required monitors inoperable.</p>	<p>G.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

ACTIONS (continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.	[[12] hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.4.15.2	Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitor.	[92 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the required containment sump monitor.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.15.4	Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitor.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.4.15.5	[Perform CHANNEL CALIBRATION of the required containment air cooler condensate flow rate monitor.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]]</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 specific activity shall be within limits.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. DOSE EQUIVALENT I-131 not within limit.</p>	<p>-----NOTE----- LCO 3.0.4.c is applicable. -----</p> <p>A.1 Verify DOSE EQUIVALENT I-131 $\leq [60] \mu\text{Ci/gm}$.</p> <p><u>AND</u></p> <p>A.2 Restore DOSE EQUIVALENT I-131 to within limit.</p>	<p>Once per 4 hours</p> <p>48 hours</p>
<p>B. DOSE EQUIVALENT XE-133 not within limit.</p>	<p>-----NOTE----- LCO 3.0.4.c is applicable. -----</p> <p>B.1 Restore DOSE EQUIVALENT XE-133 to within limit.</p>	<p>48 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition A or B not met.</p> <p><u>OR</u></p> <p>DOSE EQUIVALENT I-131 > [60] $\mu\text{Ci/gm}$.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.16.1</p> <p>-----NOTE-----</p> <p>Only required to be performed in MODE 1.</p> <p>-----</p> <p>Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity \leq [280] $\mu\text{Ci/gm}$.</p>	<p>[7 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.4.16.2</p> <p>-----NOTE----- Only required to be performed in MODE 1. -----</p> <p>Verify reactor coolant DOSE EQUIVALENT I-131 specific activity $\leq [1.0] \mu\text{Ci/gm}$.</p>	<p>[14 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p> <p><u>AND</u></p> <p>Between 2 and 6 hours after THERMAL POWER change of $\geq 15\%$ RTP within a 1 hour period</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Special Test Exception (STE)-RCS Loops

LCO 3.4.17 The requirements of LCO 3.4.4, "RCS Loops - MODES 1 and 2," and the listed requirements of LCO 3.3.1, "Reactor Protective System (RPS) Instrumentation - Operating," for the [(Analog) RC flow low, thermal margin or low pressure, and asymmetric steam generator transient protective trip functions] [(Digital) high log power, high local power density, low departure from nucleate boiling ratio protective trip functions] may be suspended provided:

- a. THERMAL POWER \leq 5% RTP and
- b. The reactor trip setpoints of the OPERABLE power level channels are set \leq 20% RTP.

APPLICABILITY: MODE 2, during startup and PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. THERMAL POWER not within limit.	A.1 Open reactor trip breakers.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.17.1 Verify THERMAL POWER \leq 5% RTP.	[1 hour <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.17.2	Perform a CHANNEL FUNCTIONAL TEST on each logarithmic power level and linear power level neutron flux monitoring channel.	12 hours prior to initiating startup or PHYSICS TESTS

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.18 Steam Generator (SG) Tube Integrity

LCO 3.4.18 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube plugging [or repair] criteria shall be plugged [or repaired] in accordance with the Steam Generator Program.

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

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each SG tube.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SG tubes satisfying the tube plugging [or repair] criteria and not plugged [or repaired] in accordance with the Steam Generator Program.	A.1 Verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection. <u>AND</u> A.2 Plug [or repair] the affected tube(s) in accordance with the Steam Generator Program.	7 days Prior to entering MODE 4 following the next refueling outage or SG tube inspection
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> SG tube integrity not maintained.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.18.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.18.2	Verify that each inspected SG tube that satisfies the tube plugging [or repair] criteria is plugged [or repaired] in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Safety Injection Tanks (SITs)

LCO 3.5.1 [Four] SITs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with pressurizer pressure \geq [700] psia.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One SIT inoperable due to boron concentration not within limits.</p> <p><u>OR</u></p> <p>One SIT inoperable due to the inability to verify level or pressure.</p>	<p>A.1 Restore SIT to OPERABLE status.</p>	72 hours
<p>B. One SIT inoperable for reasons other than Condition A.</p>	<p>B.1 Restore SIT to OPERABLE status.</p>	24 hours
<p>C. Required Action and associated Completion Time of Condition A or B not met.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Reduce pressurizer pressure to $<$ [700] psia.</p>	<p>6 hours</p> <p>12 hours</p>
<p>D. Two or more SITs inoperable.</p>	<p>D.1 Enter LCO 3.0.3.</p>	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each SIT isolation valve is fully open.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.5.1.2	Verify borated water volume in each SIT is \geq [28% narrow range (1802 cubic feet) and \leq 72% narrow range (1914 cubic feet)].	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.5.1.3	Verify nitrogen cover pressure in each SIT is \geq [615] psig and \leq [655] psig.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.4 Verify boron concentration in each SIT is \geq [1500] ppm and \leq [2800] ppm.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p> <p><u>AND</u></p> <p>-----NOTE----- Only required to be performed for affected SIT -----</p> <p>Once within 6 hours after each solution volume increase of \geq [1]% of tank volume that is not the result of addition from the refueling water tank</p>
<p>SR 3.5.1.5 Verify power is removed from each SIT isolation valve operator when pressurizer pressure is \geq [2000] psia.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS - Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with pressurizer pressure \geq [1700] psia.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----REVIEWER'S NOTE----- The adoption of this Condition is contingent upon implementation of a program to perform a contemporaneous assessment of the overall impact on safety of proposed plant configurations prior to performing and during performance of maintenance activities that remove equipment from service. -----</p>		
<p>A. One LPSI subsystem inoperable.</p>	<p>A.1 Restore subsystem to OPERABLE status.</p>	<p>7 days <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more trains inoperable for reasons other than Condition A.	B.1 Restore train(s) to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Reduce pressurizer pressure to < [1700] psia.	6 hours 12 hours
D. Less than 100% of the ECCS flow equivalent to a single OPERABLE train available.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY												
SR 3.5.2.1 [Verify the following valves are in the listed position with power to the valve operator removed [and key locked in position]. <table border="0"> <thead> <tr> <th><u>Valve Number</u></th> <th><u>Position</u></th> <th><u>Function</u></th> </tr> </thead> <tbody> <tr> <td>[]</td> <td>[]</td> <td>[]</td> </tr> <tr> <td>[]</td> <td>[]</td> <td>[]</td> </tr> <tr> <td>[]</td> <td>[]</td> <td>[]</td> </tr> </tbody> </table>	<u>Valve Number</u>	<u>Position</u>	<u>Function</u>	[]	[]	[]	[]	[]	[]	[]	[]	[]	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
<u>Valve Number</u>	<u>Position</u>	<u>Function</u>											
[]	[]	[]											
[]	[]	[]											
[]	[]	[]											

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.5.2.2</p> <p>-----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.5.2.3</p> <p>Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.5.2.4</p> <p>Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.</p>	<p>In accordance with the INSERVICE TESTING PROGRAM</p>
<p>SR 3.5.2.5</p> <p>[Verify each charging pump develops a flow of \geq [36] gpm at a discharge pressure of \geq [2200] psig.</p>	<p>In accordance with the INSERVICE TESTING PROGRAM]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	Verify each ECCS automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.5.2.7	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.5.2.8	Verify each LPSI pump stops on an actual or simulated actuation signal.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.5.2.9	[Verify, for each ECCS throttle valve listed below, each position stop is in the correct position. <u>Valve Number</u> [] []	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One high pressure safety injection (HPSI) train shall be OPERABLE.

APPLICABILITY: MODE 3 with pressurizer pressure < [1700] psia,
MODE 4.

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to ECCS High Pressure Safety Injection subsystem when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required HPSI train inoperable.	A.1 Restore required HPSI train to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 5.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.3.1 The following SRs are applicable: [SR 3.5.2.1] SR 3.5.2.6 SR 3.5.2.2 SR 3.5.2.7 [SR 3.5.2.3] [SR 3.5.2.9] SR 3.5.2.4	In accordance with applicable SRs

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Refueling Water Tank (RWT)

LCO 3.5.4 The RWT shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RWT boron concentration not within limits.	A.1 Restore RWT to OPERABLE status.	8 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3 or MODE 4. ----- Be in MODE 3.	6 hours
C. RWT borated water temperature not within limits.	C.1 Restore RWT to OPERABLE status.	8 hours
D. RWT inoperable for reasons other than Condition A or C.	D.1 Restore RWT to OPERABLE status	1 hour
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.4.1</p> <p>-----NOTE----- [Only required to be performed when ambient air temperature is < [40]°F or > [100]°F.] -----</p> <p>Verify RWT borated water temperature is \geq [40]°F and \leq [100]°F.</p>	<p>[24 hours</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.5.4.2</p> <p>Verify RWT borated water volume is \geq [362,800 gallons, (88)%] [above the ECCS suction connection].</p>	<p>[7 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.5.4.3</p> <p>Verify RWT boron concentration is \geq [1720] ppm and \leq [2500] ppm.</p>	<p>[7 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.5 Trisodium Phosphate (TSP)

LCO 3.5.5 The TSP baskets shall contain \geq [291] ft³ of active TSP.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. TSP not within limits.	A.1 Restore TSP to within limits.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	[12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.5.1 Verify the TSP baskets contain \geq [291] ft ³ of trisodium phosphate.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.5.2	Verify that a sample from the TSP baskets provides adequate pH adjustment of RWT water.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.1 Containment (Atmospheric and Dual)

LCO 3.6.1 Containment shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment inoperable.	A.1 Restore containment to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.1 Perform required visual examinations and leakage rate testing except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.1.2 [Verify containment structural integrity in accordance with the Containment Tendon Surveillance Program.	In accordance with the Containment Tendon Surveillance Program]

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks (Atmospheric and Dual)

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

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

ACTIONS

-----NOTES-----

1. Entry and exit is permissible to perform repairs on the affected air lock components.
 2. Separate Condition entry is allowed for each air lock.
 3. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when leakage results in exceeding the overall containment leakage rate acceptance criteria.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more containment air locks with one containment air lock door inoperable.</p>	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls [if both air locks are inoperable]. <p>-----</p> <p>A.1 Verify the OPERABLE door is closed in the affected air lock.</p> <p><u>AND</u></p>	<p>1 hour</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.</p>	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.2.1 -----NOTES----- 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1. ----- Perform required air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program.</p>	<p>In accordance with the Containment Leakage Rate Testing Program</p>
<p>SR 3.6.2.2 Verify only one door in the air lock can be opened at a time.</p>	<p>[24 months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves (Atmospheric and Dual)

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

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

ACTIONS

-----NOTES-----

1. Penetration flow paths [except for [42] inch purge valve penetration flow paths] may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for system(s) made inoperable by containment isolation valves.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable to the [containment sump supply valves to the ECCS and containment spray pumps]. ----- One or more penetration flow paths with one containment isolation valve inoperable.</p>	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p style="text-align: center;"><u>AND</u></p>	<p>4 hours</p> <p style="text-align: center;"><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days [following isolation] for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p>
<p>[B. -----NOTE----- Only applicable to penetration flow paths with two [or more] containment isolation valves. -----</p> <p>One or more penetration flow paths with one containment isolation valve inoperable [for reasons other than Condition[s] A, E, [and F]].</p>	<p>B.1</p> <p>Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p><u>AND</u></p>	<p>[7 days]</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days [following isolation] for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment]</p>
<p>C. -----NOTE-----</p> <p>Only applicable to penetration flow paths with two [or more] containment isolation valves.</p> <p>-----</p> <p>One or more penetration flow paths with two [or more] containment isolation valves inoperable [for reasons other than Condition[s] E [and F]].</p>	<p>C.1</p> <p>Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>1 hour</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. -----NOTE----- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. ----- One or more penetration flow paths with one containment isolation valve inoperable.</p>	<p>D.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p> <p><u>AND</u></p> <p>D.2 -----NOTES----- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ----- Verify the affected penetration flow path is isolated.</p>	<p>72 hours for those penetrations that do not meet the 7 day criteria</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p><u>AND</u></p> <p>7 days for those penetrations that meet the 7 day criteria</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>Once per 31 days [following isolation]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. [One or more secondary containment bypass leakage [or purge valve leakage] not within limit.	E.1 Restore leakage within limit.	4 hours for secondary containment bypass leakage <u>AND</u> 24 hours for purge valve leakage]
F. [One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	F.1 Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve with resilient seals, closed manual valve with resilient seals, or blind flange]. <u>AND</u>	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>F.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p> <p><u>AND</u></p> <p>F.3 Perform SR 3.6.3.6 for the resilient seal purge valves closed to comply with Required Action F.1.</p>	<p>Once per 31 days for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p> <p>Once per [] days]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Required Action and associated Completion Time not met.	G.1 Be in MODE 3. <u>AND</u>	6 hours
	G.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.1 [Verify each [42] inch purge valve is sealed closed except for one purge valve in a penetration flow path while in Condition E of this LCO.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.6.3.2 Verify each [8] inch purge valve is closed except when the [8] inch purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.6.3.3</p> <p>-----NOTE----- Valves and blind flanges in high radiation areas may be verified by use of administrative means. -----</p> <p>Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.6.3.4</p> <p>-----NOTE----- Valves and blind flanges in high radiation areas may be verified by use of administrative means. -----</p> <p>Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.</p>	<p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.5	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	<p>[In accordance with the INSERVICE TESTING PROGRAM</p> <p><u>OR</u></p> <p>[92 days]</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.6.3.6	Perform leakage rate testing for containment purge valves with resilient seals.	<p>[184 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p> <p><u>AND</u></p> <p>Within 92 days after opening the valve</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.6.3.7 Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.6.3.8 [Verify each [] inch containment purge valve is blocked to restrict the valve from opening > [50]%.]</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]</p>
<p>SR 3.6.3.9 [Verify the combined leakage rate for all secondary containment bypass leakage paths is \leq [L_a] when pressurized to \geq [psig].]</p>	<p>In accordance with the Containment Leakage Rate Testing Program]</p>

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure (Atmospheric and Dual)

LCO 3.6.4 Containment pressure shall be [Dual: > 14.375 psia and < 27 inches water gauge] [or] [Atmospheric: ≥ -0.3 psig and ≤ +1.5 psig].

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment pressure not within limits.	A.1 Restore containment pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1	Verify containment pressure is within limits.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature (Atmospheric and Dual)

LCO 3.6.5 Containment average air temperature shall be \leq [120]°F.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature not within limit.	A.1 Restore containment average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1	Verify containment average air temperature is within limit.	[24 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.6A Containment Spray and Cooling Systems (Atmospheric and Dual)
(Credit taken for iodine removal by the Containment Spray System)

LCO 3.6.6A Two containment spray trains and two containment cooling trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	[7] days <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
B. One containment cooling train inoperable.	B.1 Restore containment cooling train to OPERABLE status.	7 days <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
C. ----- NOTE ----- Not applicable when second containment spray train intentionally made inoperable. ----- Two containment spray trains inoperable.	C.1 Verify LCO 3.7.11, "CREACS," is met. <u>AND</u> C.2 Restore at least one containment spray train to OPERABLE status.	1 hour 24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One containment spray train and one containment cooling train inoperable.	D.1 Restore containment spray train to OPERABLE status.	72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
	<u>OR</u> D.2 Restore containment cooling train to OPERABLE status.	72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
E. Two containment cooling trains inoperable.	E.1 Restore one containment cooling train to OPERABLE status.	72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
F. Required Action and associated Completion Time not met.	F.1 Be in MODE 3.	6 hours
	<u>AND</u> F.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Any combination of three or more trains inoperable.	G.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.6A.1</p> <p style="text-align: center;">-----NOTE-----</p> <p>Not required to be met for system vent flow paths opened under administrative control.</p> <p style="text-align: center;">-----</p> <p>Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.6.6A.2</p> <p>Operate each containment cooling train fan unit for ≥ 15 minutes.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6A.3	Verify each containment cooling train cooling water flow rate is \geq [2000] gpm to each fan cooler.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.6A.4	[Verify the containment spray piping is full of water to the [100] ft level in the containment spray header.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.6.6A.5	Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.6A.6	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.6.6A.7 Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.6.6A.8 Verify each containment spray pump starts automatically on an actual or simulated actuation signal.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.6.6A.9 Verify each containment cooling train starts automatically on an actual or simulated actuation signal.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.6A.10 Verify each spray nozzle is unobstructed.	[At first refueling] <u>AND</u> [10 years <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.6B Containment Spray and Cooling Systems (Atmospheric and Dual)
(Credit not taken for iodine removal by the Containment Spray System)

LCO 3.6.6B Two containment spray trains and two containment cooling trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	7 days <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
B. One containment cooling train inoperable.	B.1 Restore containment cooling train to OPERABLE status.	7 days <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]
C. Two containment spray trains inoperable.	C.1 Restore one containment spray train to OPERABLE status.	72 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One containment spray train and one containment cooling train inoperable.</p>	<p>D.1 Restore containment spray train to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore containment cooling train to OPERABLE status.</p>	<p>72 hours</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>72 hours</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>E. Two containment cooling trains inoperable.</p>	<p>E.1 Restore one containment cooling train to OPERABLE status.</p>	<p>72 hours</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p>	<p>F.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>F.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. -----</p> <p>Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Any combination of three or more trains inoperable.	G.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.6B.1</p> <p style="text-align: center;">-----NOTE-----</p> <p>Not required to be met for system vent flow paths opened under administrative control.</p> <p style="text-align: center;">-----</p> <p>Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.6.6B.2</p> <p>Operate each containment cooling train fan unit for ≥ 15 minutes.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.6B.3 Verify each containment cooling train cooling water flow rate is \geq [2000] gpm to each fan cooler.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.6B.4 [Verify the containment spray piping is full of water to the [100] ft level in the containment spray header.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.6.6B.5 Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.6B.6 Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.6.6B.7 Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to its correct position on an actual or simulated actuation signal.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.6.6B.8 Verify each containment spray pump starts automatically on an actual or simulated actuation signal.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.6.6B.9 Verify each containment cooling train starts automatically on an actual or simulated actuation signal.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.6B.10 Verify each spray nozzle is unobstructed.	[At first refueling] <u>AND</u> [10 years <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.7 Spray Additive System (Atmospheric and Dual)

LCO 3.6.7 The Spray Additive System shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spray Additive System inoperable.	A.1 Restore Spray Additive System to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.7.1 Verify each spray additive manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.7.2	Verify spray additive tank solution volume is \geq [816] gal [90%] and \leq [896] gal [100%].	[184 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.7.3	Verify spray additive tank [N ₂ H ₄] solution concentration is \geq [33]% and \leq [35]% by weight.	[184 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.7.4	[Verify each spray additive pump develops a differential pressure of [100] psid on recirculation flow.	In accordance with the INSERVICE TESTING PROGRAM]
SR 3.6.7.5	Verify each spray additive automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.7.6 [Verify spray additive flow [rate] from each solution's flow path.	[5 years <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

3.6 CONTAINMENT SYSTEMS

3.6.8 Shield Building Exhaust Air Cleanup System (SBEACS) (Dual)

LCO 3.6.8 Two SBEACS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SBEACS train inoperable.	A.1 Restore train to OPERABLE status.	7 days
B. ----- NOTE ----- Not applicable when second SBEACS train intentionally made inoperable. ----- Two SBEACS trains inoperable.	B.1 Verify at least one train of containment spray is OPERABLE. <u>AND</u> B.2 Restore at least one SBEACS train to OPERABLE status.	1 hour 24 hours
C. Required Action and Associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.8.1	Operate each SBEACS train for ≥ 15 continuous minutes [with heaters operating].	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.8.2	Perform required SBEACS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.8.3	Verify each SBEACS train actuates on an actual or simulated actuation signal, except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.8.4	[Verify each SBEACS filter bypass damper can be opened, except for dampers that are locked, sealed, or otherwise secured in the open position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.8.5	Verify each SBEACS train flow rate is \geq [] cfm.	[[18] months on a STAGGERED TEST BASIS <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.9 Hydrogen Mixing System (HMS) (Atmospheric and Dual)

LCO 3.6.9 [Two] HMS trains shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One HMS train inoperable.	A.1 Restore HMS train to OPERABLE status.	30 days
B. [Two HMS trains inoperable.	B.1 Verify by administrative means that the hydrogen control function is maintained. <u>AND</u> B.2 Restore one HMS train to OPERABLE status.	1 hour <u>AND</u> Once every 12 hours thereafter 7 days]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.9.1	Operate each HMS train for ≥ 15 minutes.	[92 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.9.2	Verify each HMS train flow rate on slow speed is $\geq [37,000]$ cfm.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.9.3	Verify each HMS train starts on an actual or simulated actuation signal.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.10 Iodine Cleanup System (ICS) (Atmospheric and Dual)

LCO 3.6.10 Two ICS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ICS train inoperable.	A.1 Restore ICS train to OPERABLE status.	7 days
B. ----- NOTE ----- Not applicable when second ICS train intentionally made inoperable. ----- Two ICS trains inoperable.	B.1 Verify at least one train of containment spray is OPERABLE. <u>AND</u> B.2 Restore at least one ICS train to OPERABLE status.	1 hour 24 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.10.1	Operate each ICS train for ≥ 15 continuous minutes [with heaters operating].	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.10.2	Perform required ICS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.10.3	Verify each ICS train actuates on an actual or simulated actuation signal, except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.10.4	[Verify each ICS filter bypass damper can be opened, except for dampers that are locked, sealed, or otherwise secured in the open position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

3.6 CONTAINMENT SYSTEMS

3.6.11 Shield Building (Dual)

LCO 3.6.11 Shield building shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shield building inoperable.	A.1 Restore shield building to OPERABLE status.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.11.1 Verify annulus negative pressure is > [5] inches water gauge.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.11.2	Verify one shield building access door in each access opening is closed.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.11.3	Verify shield building structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the shield building.	During shutdown for SR 3.6.1.1 Type A tests
SR 3.6.11.4	Verify the shield building can be maintained at a pressure equal to or more negative than [-0.25] inch water gauge in the annulus by one Shield Building Exhaust Air Cleanup System train with a final flow rate \leq [] cfm within [1] minute after a start signal.	[[18] months on a STAGGERED TEST BASIS for each Shield Building Exhaust Air Cleanup System <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.12 Vacuum Relief Valves (Dual)

LCO 3.6.12 Two vacuum relief lines shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One vacuum relief line inoperable.	A.1 Restore vacuum relief line to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.12.1 Verify each vacuum relief line OPERABLE in accordance with the INSERVICE TESTING PROGRAM.	In accordance with the INSERVICE TESTING PROGRAM

3.6 CONTAINMENT SYSTEMS

3.6.13 Containment Sump

LCO 3.6.13 [The][Two] containment sump[s] shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. [One or more] containment sump[s] inoperable due to containment accident generated and transported debris exceeding the analyzed limits.</p>	<p>A.1 Initiate action to mitigate containment accident generated and transported debris.</p> <p><u>AND</u></p> <p>A.2 Perform SR 3.4.13.1.</p> <p><u>AND</u></p> <p>A.3 Restore the containment sump[s] to OPERABLE status.</p>	<p>Immediately</p> <p>Once per 24 hours</p> <p>90 days</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.13.1	Verify, by visual inspection, the containment sump[s] does not show structural damage, abnormal corrosion, or debris blockage.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 The MSSVs shall be OPERABLE as specified in Table 3.7.1-1 and Table 3.7.1-2.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required MSSVs inoperable.	A.1 Reduce power to less than or equal to the applicable % RTP listed in Table 3.7.1-1.	4 hours
	<u>AND</u> A.2 Reduce the [variable overpower trip - high] setpoint [ceiling] in accordance with Table 3.7.1-1.	36 hours
B. Required Action and associated Completion Time not met. <u>OR</u> One or more steam generators with less than [two] MSSVs OPERABLE.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	[12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.1.1</p> <p>-----NOTE----- Only required to be performed in MODES 1 and 2. -----</p> <p>Verify each required MSSV lift setpoint per Table 3.7.1-2 in accordance with the INSERVICE TESTING PROGRAM. Following testing, lift settings shall be within $\pm 1\%$.</p>	<p>In accordance with the INSERVICE TESTING PROGRAM</p>

Table 3.7.1-1 (page 1 of 1)
[Variable Overpower Trip] Setpoint versus
OPERABLE Main Steam Safety Valves

MINIMUM NUMBER OF MSSVs PER STEAM GENERATOR REQUIRED OPERABLE	MAXIMUM POWER (% RTP)	MAXIMUM ALLOWABLE [VARIABLE OVERPOWER TRIP] SETPOINT ([CEILING] % RTP)
[8]	[]	[]
[7]	[]	[]
[6]	[]	[]
[5]	[]	[]
[4]	[]	[]
[3]	[]	[]
[2]	[]	[]

Table 3.7.1-2 (page 1 of 1)
Main Steam Safety Valve Lift Settings

VALVE NUMBER		LIFT SETTING (psig ± [3]%)
Steam Generator #1	Steam Generator #2	
[]	[]	[]
[]	[]	[]
[]	[]	[]
[]	[]	[]

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 [Two] MSIVs shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 except when all MSIVs are closed [and de-activated].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	[8] hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Required Action and Associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
C. -----NOTE----- Separate Condition entry is allowed for each MSIV. ----- One or more MSIVs inoperable in MODE 2 or 3.	C.1 Close MSIV. <u>AND</u> C.2 Verify MSIV is closed.	[8] hours Once per 7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	6 hours [12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.2.1</p> <p>-----NOTE----- Only required to be performed in MODES 1 and 2. -----</p> <p>Verify the isolation time of each MSIV is within limits.</p>	<p>In accordance with the INSERVICE TESTING PROGRAM</p>
<p>SR 3.7.2.2</p> <p>-----NOTE----- Only required to be performed in MODES 1 and 2. -----</p> <p>Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs) [and [MFIV] Bypass Valves]

LCO 3.7.3 [Two] MFIVs [and [MFIV] bypass valves] shall be OPERABLE.

APPLICABILITY: MODES 1, 2, [and 3] except when MFIV [or [MFIV] bypass valve] is closed and [de-activated] or [isolated by a closed manual valve].

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MFIVs [or [MFIV] bypass valves] inoperable.	A.1 Close or isolate inoperable MFIV [or [MFIV] bypass valve].	[8 or 72] hours
	<u>AND</u> A.2 Verify inoperable MFIV [or [MFIV] bypass valve] is closed or isolated.	Once per 7 days
B. [[Two] valves in the same flow path inoperable.	B.1 Isolate affected flow path.	8 hours
	<u>AND</u> B.2 Verify inoperable MFIV [or [MFIV] bypass valve] is closed or isolated.	Once per 7 days]
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	[<u>AND</u> C.2 Be in MODE 4.	[12] hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify the isolation time of each MFIV [and [MFIV] bypass valve] is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.3.2	Verify each MFIV [and [MFIV] bypass valve] actuates to the isolation position on an actual or simulated actuation signal.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Dump Valves (ADVs)

LCO 3.7.4 [Two] ADV lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
[MODE 4 when steam generator is being relied upon for heat removal].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ADV line inoperable.	A.1 Restore ADV line to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program]
B. Two or more [required] ADV lines inoperable.	B.1 Restore all but one ADV line to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. [<u>AND</u> C.2 Be in MODE 4 without reliance upon steam generator for heat removal.	6 hours [24] hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify one complete cycle of each ADV.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.7.4.2	[Verify one complete cycle of each ADV block valve.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]]</p>

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 [Three] AFW trains shall be OPERABLE.

-----NOTE-----
Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.

APPLICABILITY: MODES 1, 2, and 3,
[MODE 4 when steam generator is relied upon for heat removal].

ACTIONS
-----NOTE-----
LCO 3.0.4.b is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. [Turbine driven AFW train inoperable due to one inoperable steam supply.</p> <p><u>OR</u></p> <p>-----NOTE----- Only applicable if MODE 2 has not been entered following refueling. -----</p> <p>One turbine driven AFW pump inoperable in MODE 3 following refueling.</p>	<p>A.1 Restore affected equipment to OPERABLE status.</p>	<p>7 days</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One AFW train inoperable in MODE 1, 2, or 3 [for reasons other than Condition A].</p>	<p>B.1 Restore AFW train to OPERABLE status.</p>	<p>72 hours</p> <p><u>[OR]</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. Turbine driven AFW train inoperable due to one inoperable steam supply.</p> <p><u>AND</u></p> <p>One motor driven AFW train inoperable.</p>	<p>C.1 Restore the steam supply to the turbine driven train to OPERABLE status.</p> <p><u>OR</u></p> <p>C.2 Restore the motor driven AFW train to OPERABLE status.</p>	<p>[24 or 48] hours</p> <p>[24 or 48] hours</p>
<p>D. Required Action and associated Completion Time of Condition A [B, or C] not met.</p> <p><u>[OR</u></p> <p>[Two] AFW trains inoperable in MODE 1, 2, or 3 for reasons other than Condition C.]</p>	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>6 hours</p> <p>[18] hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. [[Three] AFW trains inoperable in MODE 1, 2, or 3.</p>	<p>E.1 -----NOTE----- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ----- Initiate action to restore one AFW train to OPERABLE status.</p>	<p>Immediately]</p>
<p>F. Required AFW train inoperable in MODE 4.</p>	<p>F.1 -----NOTE----- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ----- Initiate action to restore one AFW train to OPERABLE status.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.5.1 Verify each AFW manual, power operated, and automatic valve in each water flow path and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	<p>[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.7.5.2</p> <p>-----NOTE----- Not required to be performed for the turbine driven AFW pump until [24] hours after reaching [800] psig in the steam generators. -----</p> <p>Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.</p>	<p>In accordance with the INSERVICE TESTING PROGRAM</p>
<p>SR 3.7.5.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Not required to be performed for the turbine driven AFW pump until [24] hours after reaching [800] psig in the steam generators. 2. Not required to be met in MODE 4 when steam generator is relied upon for heat removal. <p>-----</p> <p>Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.7.5.4</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Not required to be performed for the turbine driven AFW pump until [24] hours after reaching [800] psig in the steam generators. 2. Not required to be met in MODE 4 when steam generator is relied upon for heat removal. <p>-----</p> <p>Verify each AFW pump starts automatically on an actual or simulated actuation signal when in MODE 1, 2, or 3.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.7.5.5</p> <p>Verify the proper alignment of the required AFW flow paths by verifying flow from the condensate storage tank to each steam generator.</p>	<p>Prior to entering MODE 2 whenever unit has been in MODE 5, MODE 6, or defueled for a cumulative period of > 30 days</p>

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
[MODE 4 when steam generator is relied upon for heat removal].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CST inoperable.	<p>A.1 Verify OPERABILITY of backup water supply.</p> <p><u>AND</u></p> <p>A.2 Restore CST to OPERABLE status.</p>	<p>4 hours</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>7 days</p>
B. Required Action and associated Completion Time not met.	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 4 without reliance on steam generator for heat removal.</p>	<p>6 hours</p> <p>[24] hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.6.1 Verify CST level is \geq [350,000] gal.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.7.1</p> <p>-----NOTE----- Isolation of CCW flow to individual components does not render the CCW System inoperable. -----</p> <p>Verify each CCW manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.7.7.2</p> <p>Verify each CCW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.7.7.3</p> <p>Verify each CCW pump starts automatically on an actual or simulated actuation signal.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.7 PLANT SYSTEMS

3.7.8 Service Water System (SWS)

LCO 3.7.8 Two SWS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One SWS train inoperable.</p>	<p>A.1 -----NOTES----- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by SWS. 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for shutdown cooling made inoperable by SWS. ----- Restore SWS train to OPERABLE status.</p>	<p>72 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.8.1 -----NOTE----- Isolation of SWS flow to individual components does not render the SWS inoperable. ----- Verify each SWS manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.8.2	Verify each SWS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
SR 3.7.8.3	Verify each SWS pump starts automatically on an actual or simulated actuation signal.	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----REVIEWER'S NOTE----- The [] °F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit. ----- C. [Water temperature of the UHS > [90]°F and ≤ []°F.</p>	<p>C.1 Verify water temperature of the UHS is ≤ [90]°F averaged over the previous 24 hour period.</p>	<p>Once per hour]</p>
<p>D. [Required Action and associated Completion Time of Condition C not met. <u>OR</u>] UHS inoperable [for reasons other than Condition A or C].</p>	<p>D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 5.</p>	<p>6 hours 36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.9.1 [Verify water level of UHS is ≥ [562] ft [mean sea level].</p>	<p>[24 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.9.2	[Verify average water temperature of UHS is \leq [90]°F.	[24 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.7.9.3	[Operate each cooling tower fan for \geq [15] minutes.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.10.1</p> <p>-----NOTE----- Isolation of ECW flow to individual components does not render the ECW System inoperable. -----</p> <p>Verify each ECW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.7.10.2</p> <p>Verify the proper actuation of each ECW System component on an actual or simulated actuation signal, except for valves that are locked, sealed, or otherwise secured in the actuated position.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Cleanup System (CREACS)

LCO 3.7.11 Two CREACS trains shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, 3, 4, [5, and 6,]
During movement of [recently] irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREACS train inoperable for reasons other than Condition B.	A.1 Restore CREACS train to OPERABLE status.	7 days
B. One or more CREACS trains inoperable due to inoperable CRE boundary in MODE 1, 2, 3, or 4.	B.1 Initiate action to implement mitigating actions.	Immediately
	<u>AND</u>	
	B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.	24 hours
	<u>AND</u>	
	B.3 Restore CRE boundary to OPERABLE status.	90 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. ----- NOTE ----- Not applicable when second CREACS train intentionally made inoperable. ----- Two CREACS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.</p>	<p>C.1 Initiate action to implement mitigating actions. <u>AND</u> C.2 Verify LCO 3.4.16, "RCS Specific Activity," is met. <u>AND</u> C.3 Restore at least one CREACS train to OPERABLE status.</p>	<p>Immediately 1 hour 24 hours</p>
<p>D. Required Action and associated Completion Time of Condition A not met [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.</p>	<p>D.1 -----NOTE----- Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable. ----- Place OPERABLE CREACS train in emergency radiation protection mode. <u>OR</u> D.2 Suspend movement of [recently] irradiated fuel assemblies.</p>	<p>Immediately Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Operate each CREACS train for ≥ 15 continuous minutes [with heaters operating].	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.7.11.2	Perform required CREACS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
SR 3.7.11.3	Verify each CREACS train actuates on an actual or simulated actuation signal, except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.7.11.4	Perform required CRE unfiltered air leakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program

3.7 PLANT SYSTEMS

3.7.12 Control Room Emergency Air Temperature Control System (CREATCS)

LCO 3.7.12 Two CREATCS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, [5, and 6,]
During movement of [recently] irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREATCS train inoperable.	A.1 Restore CREATCS train to OPERABLE status.	30 days
B. ----- NOTE ----- Not applicable when second CREATCS train intentionally made inoperable. ----- Two CREATCS trains inoperable in MODE 1, 2, 3, or 4.	B.1 Restore at least one CREATCS train to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. <u>AND</u> C.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	6 hours 12 hours

3.7 PLANT SYSTEMS

3.7.13 Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)

LCO 3.7.13 Two ECCS PREACS trains shall be OPERABLE.

-----NOTE-----
The ECCS pump room boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECCS PREACS train inoperable.	A.1 Restore ECCS PREACS train to OPERABLE status.	7 days
B. Two ECCS PREACS trains inoperable due to inoperable ECCS pump room boundary.	B.1 Restore ECCS pump room boundary to OPERABLE status.	24 hours
C. ----- NOTE ----- Not applicable when second ECCS PREACS train intentionally made inoperable. ----- Two ECCS PREACS trains inoperable for reasons other than Condition B.	C.1 Restore at least one ECCS PREACS train to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. <u>AND</u>	6 hours
	D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.13.1 Operate each ECCS PREACS train for ≥ 15 continuous minutes [with heater operating].	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.7.13.2 Perform required ECCS PREACS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.13.3	Verify each ECCS PREACS train actuates on an actual or simulated actuation signal, except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.7.13.4	Verify one ECCS PREACS train can maintain a negative pressure \geq [] inches water gauge relative to atmospheric pressure during the [post accident] mode of operation at a flow rate of \leq [20,000] cfm.	[[18] months on a STAGGERED TEST BASIS <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.7.13.5	[Verify each ECCS PREACS filter bypass damper can be opened, except for dampers that are locked, sealed, or otherwise secured in the open position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

3.7 PLANT SYSTEMS

3.7.14 Fuel Building Air Cleanup System (FBACS)

LCO 3.7.14 Two FBACS trains shall be OPERABLE.

-----NOTE-----
The fuel building boundary may be opened intermittently under administrative control.

APPLICABILITY: [MODES 1, 2, 3, and 4,]
During movement of [recently] irradiated fuel assemblies in the fuel building.

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One FBACS train inoperable.	A.1 Restore FBACS train to OPERABLE status.	7 days
B. Two FBACS trains inoperable due to inoperable fuel building boundary in MODE 1, 2, 3, or 4.	B.1 Restore fuel building boundary to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. [Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.</p> <p><u>OR</u></p> <p>Two FBACS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours]</p>
<p>D. Required Action and Associated Completion Time [of Condition A] not met during movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>D.1 Place OPERABLE FBACS train in operation.</p> <p><u>OR</u></p> <p>D.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>Immediately</p> <p>Immediately</p>
<p>E. Two FBACS trains inoperable during movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>E.1 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.14.1	Operate each FBACS train for ≥ 15 continuous minutes [with heaters operating].	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.7.14.2	Perform required FBACS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
SR 3.7.14.3	[Verify each FBACS train actuates on an actual or simulated actuation signal, except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.7.14.4	Verify one FBACS train can maintain a negative pressure $\geq []$ inches water gauge with respect to atmospheric pressure, during the [post accident] mode of operation at a flow rate $\leq [3000]$ cfm.	[[18] months on a STAGGERED TEST BASIS <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.7.14.5 [Verify each FBACS filter bypass damper can be opened, except for dampers that are locked, sealed, or otherwise secured in the open position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

3.7 PLANT SYSTEMS

3.7.15 Penetration Room Exhaust Air Cleanup System (PREACS)

LCO 3.7.15 Two PREACS trains shall be OPERABLE.

-----NOTE-----
The penetration room boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One PREACS train inoperable.	A.1 Restore PREACS train to OPERABLE status.	7 days
B. Two PREACS trains inoperable due to inoperable penetration room boundary.	B.1 Restore penetration room boundary to OPERABLE status.	24 hours
C. ----- NOTE ----- Not applicable when second PREACS train intentionally made inoperable. ----- Two PREACS trains inoperable for reasons other than Condition C.	C.1 Verify at least one train of containment spray is OPERABLE. <u>AND</u> C.2 Restore at least one ECCS PREACS train to OPERABLE status.	1 hour 24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	<p><u>AND</u></p> <p>D.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. -----</p> <p>Be in MODE 4.</p>	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.15.1 Operate each PREACS train for ≥ 15 continuous minutes [with heater operating].</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.7.15.2 Verify required PREACS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].</p>	<p>In accordance with the [VFTP]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.15.3	[Verify each PREACS train actuates on an actual or simulated actuation signal, except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.7.15.4	[Verify one PREACS train can maintain a negative pressure \geq [] inches water gauge with respect to atmospheric pressure during the [post accident] mode of operation at a flow rate of \leq [3000] cfm.	[[18] months on a STAGGERED TEST BASIS <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.7.15.5	[Verify each PREACS filter bypass damper can be opened, except for dampers that are locked, sealed, or otherwise secured in the open position.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

3.7 PLANT SYSTEMS

3.7.16 Fuel Storage Pool Water Level

LCO 3.7.16 The fuel storage pool water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool water level not within limit.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of irradiated fuel assemblies in fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.16.1 Verify the fuel storage pool water level is ≥ 23 ft above the top of irradiated fuel assemblies seated in the storage racks.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.7 PLANT SYSTEMS

3.7.17 Fuel Storage Pool Boron Concentration

LCO 3.7.17 The fuel storage pool boron concentration shall be \geq [2000] ppm.

APPLICABILITY: When fuel assemblies are stored in the fuel storage pool and a fuel storage pool verification has not been performed since the last movement of fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME	
<p>A. Fuel storage pool boron concentration not within limit.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p>		
	<p>A.1 Suspend movement of fuel assemblies in the fuel storage pool.</p>		<p>Immediately</p>
	<p><u>AND</u></p> <p>A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.</p>		<p>Immediately</p>
	<p><u>OR</u></p> <p>A.2.2 Initiate action to perform a fuel storage pool verification.</p>		<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.17.1 Verify the fuel storage pool boron concentration is within limit.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.7 PLANT SYSTEMS

3.7.18 Spent Fuel Pool Storage

LCO 3.7.18 The combination of initial enrichment and burnup of each fuel assembly stored in [Region 2] shall be within the acceptable [burnup domain] of Figure 3.7.18-1 [or in accordance with Specification 4.3.1.1].

APPLICABILITY: Whenever any fuel assembly is stored in [Region 2] of the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Initiate action to move the noncomplying fuel assembly from [Region 2].	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.18.1 Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure 3.7.18-1 or Specification 4.3.1.1.	Prior to storing the fuel assembly in [Region 2]

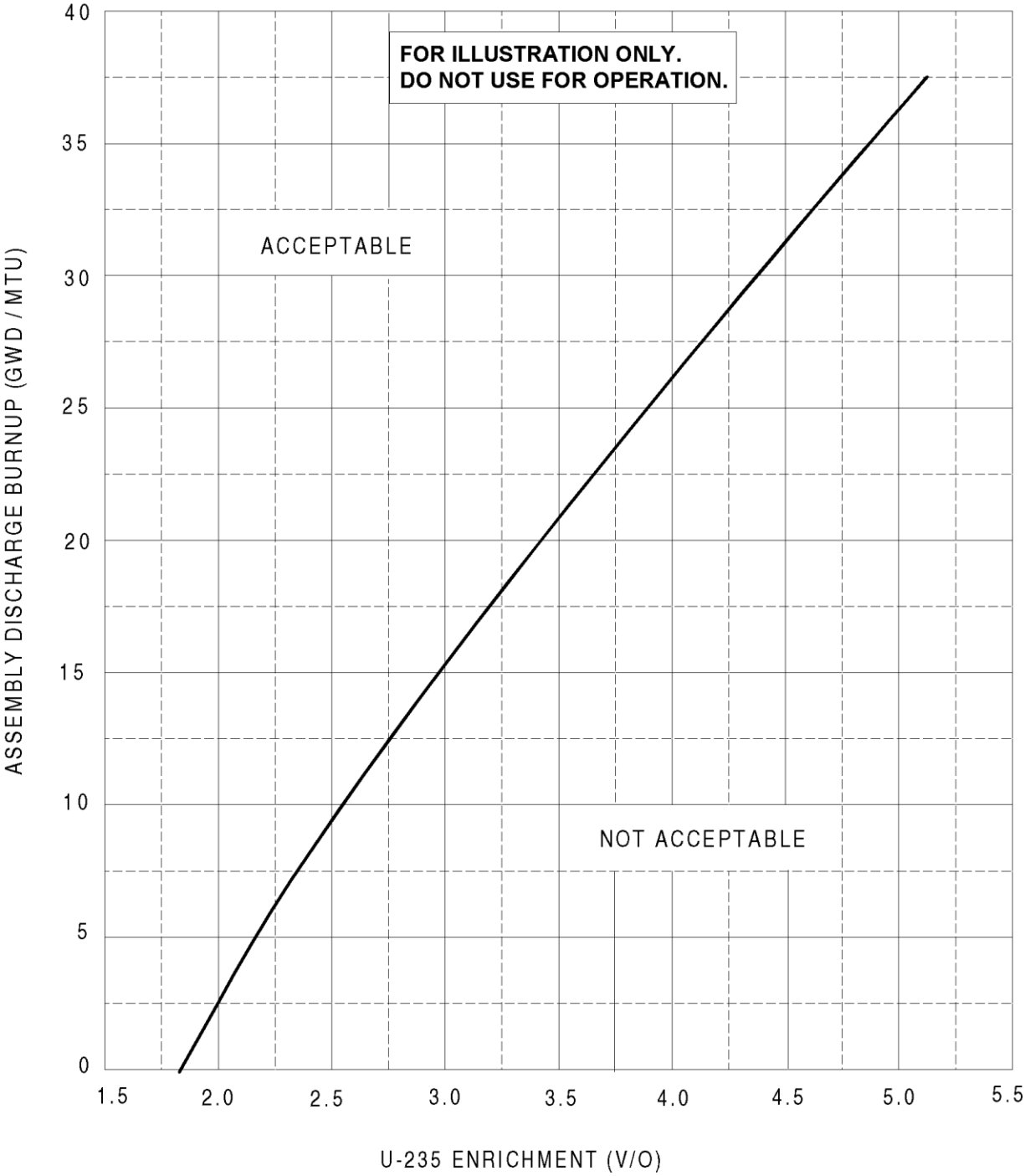


Figure 3.7.18-1 (page 1 of 1)
Discharge Burnup vs. Initial Enrichment for Region II Racks

3.7 PLANT SYSTEMS

3.7.19 Secondary Specific Activity

LCO 3.7.19 The specific activity of the secondary coolant shall be $\leq [0.10] \mu\text{Ci/gm}$
DOSE EQUIVALENT I-131.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Specific activity not within limit.	A.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.19.1 Verify the specific activity of the secondary coolant is within limit.	[[31] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System,
- b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System, and
- [c. Automatic load sequencers for Train A and Train B.]

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for [required] OPERABLE offsite circuit.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u> A.2 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.3 Restore [required] offsite circuit to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One [required] DG inoperable.</p>	<p>B.1 Perform SR 3.8.1.1 for the OPERABLE [required] offsite circuit(s).</p> <p><u>AND</u></p> <p>B.2 Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>B.3.1 Determine OPERABLE DG(s) is not inoperable due to common cause failure.</p> <p><u>OR</u></p> <p>B.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s).</p> <p><u>AND</u></p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 8 hours thereafter</p> <p>4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)</p> <p>[24] hours</p> <p>[24] hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>B.4 Restore [required] DG to OPERABLE status.</p>	<p>72 hours</p> <p><u>[OR]</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>C. Two [required] offsite circuits inoperable.</p>	<p>C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>C.2 Restore one [required] offsite circuit to OPERABLE status.</p>	<p>12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)</p> <p>24 hours</p> <p><u>[OR]</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>D. One [required] offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One [required] DG inoperable.</p>	<p>-----NOTE-----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition D is entered with no AC power source to any train.</p> <p>-----</p>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>D.1 Restore [required] offsite circuits to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore [required] DG to OPERABLE status.</p>	<p>12 hours</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p> <p>12 hours</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>E. Two [required] DGs inoperable.</p>	<p>E.1 Restore one [required] DG to OPERABLE status.</p>	<p>2 hours</p>
<p>F. -----NOTE----- This Condition may be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event. ----- [One [required] [automatic load sequencer] inoperable.</p>	<p>F.1 Restore [required] [automatic load sequencer] to OPERABLE status.</p>	<p>[12] hours</p> <p><u>[OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 2. [A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.] <p>-----</p> <p>Verify each DG starts from standby conditions and achieves steady state voltage \geq [3740] V and \leq [4580] V, and frequency \geq [58.8] Hz and \leq [61.2] Hz.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 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. 4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2 or SR 3.8.1.7. <p>-----</p> <p>Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes at a load $\geq [4500]$ kW and $\leq [5000]$ kW.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.8.1.4</p> <p>Verify each day tank [and engine mounted tank] contains $\geq [220]$ gal of fuel oil.</p>	<p>[31 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.5	Check for and remove accumulated water from each day tank [and engine mounted tank].	[[31] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.8.1.6	Verify the fuel oil transfer system operates to [automatically] transfer fuel oil from storage tank[s] to the day tank [and engine mounted tank].	[[92] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.8.1.7	<p>-----NOTE-----</p> <p>All DG starts may be preceded by an engine prelube period.</p> <p>-----</p> <p>Verify each DG starts from standby condition and achieves:</p> <p>a. In \leq [10] seconds, voltage \geq [3740] V and frequency \geq [58.8] Hz and</p> <p>b. Steady state voltage \geq [3740] V and \leq [4580] V, and frequency \geq [58.8] Hz and \leq [61.2] Hz.</p>	[184 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.8</p> <p>-----NOTE----- [This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.] -----</p> <p>[Verify [automatic [and] manual] transfer of AC power sources from the normal offsite circuit to each alternate [required] offsite circuit.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.9</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. [This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 2. If performed with the DG synchronized with offsite power, it shall be performed at a power factor \leq [0.9]. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable.] <p>-----</p> <p>Verify each DG rejects a load greater than or equal to its associated single largest post-accident load and:</p> <ol style="list-style-type: none"> a. Following load rejection, the frequency is \leq [63] Hz, b. Within [3] seconds following load rejection, the voltage is \geq [3740] V and \leq [4580] V, and c. Within [3] seconds following load rejection, the frequency is \geq [58.8] Hz and \leq [61.2] Hz. 	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.10</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. [This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 2. If performed with DG synchronized with offsite power, it shall be performed at a power factor \leq [0.9]. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable.] <p>-----</p> <p>Verify each DG does not trip, and voltage is maintained \leq [5000] V during and following a load rejection of \geq [4500] kW and \leq [5000] kW.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.11</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal:</p> <ol style="list-style-type: none"> a. De-energization of emergency buses, b. Load shedding from emergency buses, c. DG auto-starts from standby condition and: <ol style="list-style-type: none"> 1. Energizes permanently connected loads in \leq [10] seconds, 2. Energizes auto-connected shutdown loads through [automatic load sequencer], 3. Maintains steady state voltage \geq [3740] V and \leq [4580] V, 4. Maintains steady state frequency \geq [58.8] Hz and \leq [61.2] Hz, and 5. Supplies permanently connected [and auto-connected] shutdown loads for \geq 5 minutes. 	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.12</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. [All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1 or 2. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. <p>-----</p> <p>Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each DG auto-starts from standby condition and:</p> <ol style="list-style-type: none"> a. In \leq [10] seconds after auto-start and during tests, achieves voltage \geq [3740] V and frequency \geq [58.8] Hz, b. Achieves steady state voltage \geq [3740] V and \leq [4580] V and frequency \geq [58.8] Hz and \leq [61.2] Hz, c. Operates for \geq 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] from the offsite power system. 	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.13</p> <p>-----NOTE----- [This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.] -----</p> <p>Verify each DG's noncritical 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].</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.14</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 3. If performed with DG synchronized with offsite power, it shall be performed at a power factor \leq [0.9]. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. <p>-----</p> <p>Verify each DG operates for \geq 24 hours:</p> <ol style="list-style-type: none"> a. For \geq [2] hours loaded \geq [5250] kW and \leq [5500] kW and b. For the remaining hours of the test loaded \geq [4500] kW and \leq [5000] kW. 	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.17</p> <p>-----NOTE----- [This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.] -----</p> <p>Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ESF actuation signal overrides the test mode by:</p> <p>a. Returning DG to ready-to-load operation and</p> <p>[b. Automatically energizing the emergency load from offsite power.]</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]]</p>
<p>SR 3.8.1.18</p> <p>-----NOTE----- [This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.] -----</p> <p>Verify interval between each sequenced load block is within \pm [10% of design interval] for each emergency [and shutdown] load sequencer.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.19</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal:</p> <ol style="list-style-type: none"> a. De-energization of emergency buses, b. Load shedding from emergency buses, c. DG auto-starts from standby condition and: <ol style="list-style-type: none"> 1. energizes permanently connected loads in \leq [10] seconds, 2. energizes auto-connected emergency loads through [load sequencer], 3. achieves steady state voltage \geq [3740] V and \leq [4580] V, 4. achieves steady state frequency \geq [58.8] Hz and \leq [61.2] Hz, and 5. supplies permanently connected [and auto-connected] emergency loads for \geq [5] minutes. 	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.20</p> <p>-----NOTE----- All DG starts may be preceded by an engine prelube period. -----</p> <p>Verify, when started simultaneously from standby condition, each DG achieves:</p> <p>a. In \leq [10] seconds, voltage \geq [3740] V and frequency \geq [58.8] Hz and</p> <p>b. Steady state voltage \geq [3740] V and \leq [4580] V, and frequency \geq [58.8] Hz and \leq [61.2] Hz.</p>	<p>[10 years</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

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

- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems Shutdown" and
- b. One diesel generator (DG) capable of supplying one train of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. -----</p> <p>A.1 Declare affected required feature(s) with no offsite power available inoperable.</p> <p><u>OR</u></p>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.2.1 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>A.2.2 Suspend operations involving positive reactivity additions that could result in a loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>A.2.3 Initiate action to restore required offsite power circuit to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>B. One required DG inoperable.</p>	<p>B.1 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>B.2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>B.3 Initiate action to restore required DG to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1</p> <p>-----NOTE----- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, and [SR 3.8.1.18].</p> <p>-----</p> <p>For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources - Operating," except SR 3.8.1.8, SR 3.8.1.12, SR 3.8.1.17, SR 3.8.1.19, and SR 3.8.1.20, are applicable.</p>	<p>In accordance with applicable SRs</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel level less than a [7] day supply and greater than a [6] day supply in storage tank.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory less than a [7] day supply and greater than a [6] day supply.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more DGs with stored fuel oil total particulates not within limits.	C.1 Restore fuel oil total particulates to within limits.	7 days
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more DGs with starting air receiver pressure < [225] psig and \geq [125] psig.	E.1 Restore starting air receiver pressure to \geq [225] psig.	48 hours
F. Required Action and associated Completion Time not met. <u>OR</u> One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.3.1 Verify each fuel oil storage tank contains \geq a [7] day supply of fuel.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.2	Verify lubricating oil inventory is \geq a [7] day supply.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG air start receiver pressure is \geq [225] psig.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	[[31] days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One [or two] battery charger[s] on one subsystem inoperable.</p>	<p>A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.</p> <p><u>AND</u></p> <p>A.2 Verify battery float current ≤ [2] amps.</p> <p><u>AND</u></p> <p>A.3 Restore battery charger[s] to OPERABLE status.</p>	<p>2 hours</p> <p>Once per [12] hours</p> <p>[72] hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]</p>
<p>[B. One [or two] batter[y][ies] on one subsystem] inoperable.</p>	<p>B.1 Restore batter[y][ies] to OPERABLE status.</p>	<p>[2] hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program]]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.2</p> <p>Verify each battery charger supplies \geq [400] amps at greater than or equal to the minimum established float voltage for \geq [8] hours.</p> <p><u>OR</u></p> <p>Verify each battery charger can recharge the battery to the fully charged state within [24] hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>
<p>SR 3.8.4.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.3. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. <p>-----</p> <p>Verify 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.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 [DC electrical power subsystem shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."]

[One DC electrical power subsystem shall be OPERABLE.]

-----REVIEWER'S NOTE-----
This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only one DC electrical power subsystem to be OPERABLE. Action A and the bracketed optional wording in Condition B are also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem support as is required for power operating conditions.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
[A. One [or two] battery charger[s on one subsystem] inoperable. <u>AND</u> The redundant subsystem battery and charger[s] OPERABLE.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. <u>AND</u> A.2 Verify battery float current ≤ [2] amps. <u>AND</u>	2 hours Once per [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.3 Restore battery charger[s] to OPERABLE status.	[72] hours]
<p>B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A not met].</p>	<p>B.1 Declare affected required feature(s) inoperable.</p> <p><u>OR</u></p> <p>B.2.1 Suspend movement of [recently] irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>B.2.2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>B.2.3 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

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

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

LCO 3.8.6 Battery parameters for the Train A and Train B electrical power subsystem batteries shall be within limits.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or two] batter[y][ies on one subsystem] with one or more battery cells float voltage < [2.07] V.	A.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	A.2 Perform SR 3.8.6.1.	2 hours
	<u>AND</u>	
	A.3 Restore affected cell voltage \geq [2.07] V.	24 hours
B. One [or two] batter[y][ies on one subsystem] with float current > [2] amps.	B.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	B.2 Restore battery float current to \leq [2] amps.	[12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. -----NOTE----- Required Action C.2 shall be completed if electrolyte level was below the top of plates. ----- One [or two] batter[y][ies on one subsystem] with one or more cells electrolyte level less than minimum established design limits.</p>	<p>-----NOTE----- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. ----- C.1 Restore electrolyte level to above top of plates. <u>AND</u> C.2 Verify no evidence of leakage. <u>AND</u> C.3 Restore electrolyte level to greater than or equal to minimum established design limits.</p>	<p>8 hours 12 hours 31 days</p>
<p>D. One [or two] batter[y][ies on one subsystem] with pilot cell electrolyte temperature less than minimum established design limits.</p>	<p>D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.</p>	<p>12 hours</p>
<p>E. One or more batteries in redundant subsystems with battery parameters not within limits.</p>	<p>E.1 Restore battery parameters for batteries in one subsystem to within limits.</p>	<p>2 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p> <p><u>OR</u></p> <p>One [or two] batter[y][ies on one subsystem] with one or more battery cells float voltage < [2.07] V and float current > [2] amps.</p>	<p>F.1 Declare associated battery inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1</p> <p>-----NOTE-----</p> <p>Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1.</p> <p>-----</p> <p>Verify each battery float current is \leq [2] amps.</p>	<p>[7 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.2	Verify each battery pilot cell float voltage is $\geq [2.07]$ V.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.8.6.5	Verify each battery connected cell float voltage is $\geq [2.07]$ V.	[92 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.6</p> <p>-----NOTE----- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. However, portions of this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. -----</p> <p>Verify battery capacity is \geq [80%] of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.</p>	<p>[60 months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p> <p><u>AND</u></p> <p>12 months when battery shows degradation, or has reached [85]% of the expected life with capacity < 100% of manufacturer's rating</p> <p><u>AND</u></p> <p>24 months when battery has reached [85]% of the expected life with capacity \geq 100% of manufacturer's rating</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The required Train A and Train B inverters shall be OPERABLE.

-----NOTE-----
 [[One/two] inverter[s] may be disconnected from [its/their] associated DC bus for ≤ 24 hours to perform an equalizing charge on [its/their] associated [common] battery, provided:

- a. The associated AC vital bus(es) [is/are] energized from [its/their] [Class 1E constant voltage source transformers] [inverter using internal AC source] and
- b. All other AC vital buses are energized from their associated OPERABLE inverters.]

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] inverter inoperable.	A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – Operating," with any vital bus de-energized. ----- Restore inverter to OPERABLE status.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<p><u>AND</u></p> <p>B.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. -----</p> <p>Be in MODE 4</p>	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.7.1 Verify correct inverter voltage, [frequency,] and alignment to required AC vital buses.	<p>[7 days</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 [Inverter(s) shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."]

[One] inverter[s] shall be OPERABLE.]

-----REVIEWER'S NOTE-----
 This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only [one] inverter to be OPERABLE. The "[or more]" optional wording in Condition A is also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem/inverter support as is required for power operating conditions.

APPLICABILITY: MODES 5 and 6,
 During movement of [recently] irradiated fuel assemblies.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or more] [required] inverter[s] inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	<u>AND</u>	

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 Train A and Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more AC electrical power distribution subsystems inoperable.</p>	<p>A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC trains made inoperable by inoperable power distribution subsystems. ----- Restore AC electrical power distribution subsystem(s) to OPERABLE status.</p>	<p>8 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]</p>
<p>B. One or more AC vital buses inoperable.</p>	<p>B.1 Restore AC vital bus subsystem(s) to OPERABLE status.</p>	<p>2 hours <u>[OR]</u> In accordance with the Risk Informed Completion Time Program]</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours <u>[OR</u> In accordance with the Risk Informed Completion Time Program]
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 5.	6 hours 36 hours
E. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.9.1 Verify correct breaker alignments and voltage to [required] AC, DC, and AC vital bus electrical power distribution subsystems.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portion of AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of [recently] irradiated fuel assemblies.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	<u>OR</u> A.2.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	<u>AND</u> A.2.2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. <u>AND</u>	Immediately

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Reactor Coolant System, [the refueling canal, and the refueling cavity] shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

-----NOTE-----
Only applicable to the refueling canal and refueling cavity when connected to the RCS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Boron concentration not within limit.	A.1 Suspend positive reactivity additions.	Immediately
	<u>AND</u> A.2 Initiate action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.1.1 Verify boron concentration is within the limit specified in the COLR.	[72 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.9 REFUELING OPERATIONS

3.9.2 Nuclear Instrumentation

LCO 3.9.2 Two source range monitors (SRMs) shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] SRM inoperable.	A.1 Suspend positive reactivity additions.	Immediately
	<p><u>AND</u></p> <p>A.2 ----- NOTE ----- Fuel assemblies, sources, and reactivity control components may be moved if necessary to restore an inoperable source range neutron flux monitor or to complete movement of a component to a safe condition. -----</p> <p>Suspend movement of fuel, sources, and reactivity control components within the reactor vessel.</p>	
B. Two [required] SRMs inoperable.	B.1 Initiate action to restore one SRM to OPERABLE status.	Immediately
	<p><u>AND</u></p> <p>B.2 Perform SR 3.9.1.1.</p>	Once per 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Perform CHANNEL CHECK.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.9.2.2	<p>-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]</p>

3.9 REFUELING OPERATIONS

3.9.3 Containment Penetrations

- LCO 3.9.3 The containment penetrations shall be in the following status:
- a. The equipment hatch closed and held in place by [four] bolts,
 - b. One door in each air lock is [capable of being] closed, and
 - c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere either:
 - 1. Closed by a manual or automatic isolation valve, blind flange, or equivalent or
 - 2. Capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

-----NOTE-----
 Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls.

APPLICABILITY: During movement of [recently] irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Suspend movement of [recently] irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify each required containment penetration is in the required status.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.9.3.2	<p>-----NOTE-----</p> <p>Not required to be met for containment purge and exhaust valve(s) in penetrations closed to comply with LCO 3.9.3.c.1.</p> <p>-----</p> <p>Verify each required containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal.</p>	<p>[[18] months</p> <p><u>OR</u></p> <p>In accordance with the Surveillance Frequency Control Program]</p>

3.9 REFUELING OPERATIONS

3.9.4 Shutdown Cooling (SDC) and Coolant Circulation - High Water Level

LCO 3.9.4 One SDC loop shall be OPERABLE and in operation.

-----NOTE-----

The required SDC loop may be removed from operation for ≤ 1 hour per [8] hour period, provided no operations are permitted that would cause introduction of coolant into the Reactor Coolant System with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1.

APPLICABILITY: MODE 6 with the water level ≥ 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required SDC loop inoperable or not in operation.	A.1 Initiate action to restore SDC loop to OPERABLE status and operation.	Immediately
	<u>AND</u>	
	A.2 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
	<u>AND</u>	
	A.3 Suspend loading irradiated fuel assemblies in the core.	Immediately
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>A.4 Close equipment hatch and secure with [four] bolts.</p> <p><u>AND</u></p> <p>A.5 Close one door in each air lock.</p> <p><u>AND</u></p> <p>A.6.1 Close each penetration providing direct access from the containment atmosphere to the outside atmosphere with a manual or automatic isolation valve, blind flange, or equivalent.</p> <p><u>OR</u></p> <p>A.6.2 Verify each penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.</p>	<p>4 hours</p> <p>4 hours</p> <p>4 hours</p> <p>4 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify one SDC loop is in operation and circulating reactor coolant at a flow rate of \geq [2200] gpm.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.9.4.2	Verify required SDC loop locations susceptible to gas accumulation are sufficiently filled with water.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.9 REFUELING OPERATIONS

3.9.5 Shutdown Cooling (SDC) and Coolant Circulation - Low Water Level

LCO 3.9.5 Two SDC loops shall be OPERABLE, and one SDC loop shall be in operation.

-----NOTES-----

1. All SDC pumps may be removed from operation for ≤ 15 minutes when switching from one train to another provided:
 - a. The core outlet temperature is maintained >10 degrees F below saturation temperature,
 - b. No operations are permitted that would cause introduction of coolant into the Reactor Coolant System with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1, and
 - c. No draining operations to further reduce RCS water volume are permitted.
 2. One required SDC loop may be inoperable for up to 2 hours for surveillance testing, provided that the other SDC loop is OPERABLE and in operation.
-

APPLICABILITY: MODE 6 with the water level < 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SDC loop inoperable.	A.1 Initiate action to restore SDC loop to OPERABLE status.	Immediately
	<u>OR</u> A.2 Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. No SDC loop OPERABLE or in operation.</p>	<p>B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>B.2 Initiate action to restore one SDC loop to OPERABLE status and to operation.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>B.3 Close equipment hatch and secure with [four] bolts.</p>	<p>4 hours</p>
	<p><u>AND</u></p>	
	<p>B.4 Close one door in each air lock.</p>	<p>4 hours</p>
	<p><u>AND</u></p>	
	<p>B.5.1 Close each penetration providing direct access from the containment atmosphere to the outside atmosphere with a manual or automatic isolation valve, blind flange, or equivalent.</p>	<p>4 hours</p>
	<p><u>OR</u></p>	
<p>B.5.2 Verify each penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.</p>	<p>4 hours</p>	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify required SDC loops are OPERABLE and one SDC loop is in operation.	[12 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	[7 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.9.5.3	Verify SDC loop locations susceptible to gas accumulation are sufficiently filled with water.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]

3.9 REFUELING OPERATIONS

3.9.6 Refueling Water Level

LCO 3.9.6 Refueling water level shall be maintained ≥ 23 ft above the top of reactor vessel flange.

APPLICABILITY: During movement of [recently] irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refueling water level not within limit.	A.1 Suspend movement of [recently] irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.6.1 Verify refueling water level is ≥ 23 ft above the top of reactor vessel flange.	[24 hours <u>OR</u> In accordance with the Surveillance Frequency Control Program]

4.0 DESIGN FEATURES

4.1 Site Location

[Text description of site location.]

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain [217] fuel assemblies. Each assembly shall consist of a matrix of [Zircalloy or ZIRLO] fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO₂) as fuel material. 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 applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.

4.2.2 [Control Rod] Assemblies

The reactor core shall contain [91] control element assemblies (CEAs). The control material shall be [silver indium cadmium, boron carbide, or hafnium metal] as approved by the NRC.

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 U-235 enrichment of [4.5] weight percent,
- b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in [Section 9.1 of the FSAR],

[c. A nominal [9] inch center to center distance between fuel assemblies placed in [the high density fuel storage racks],]

[d. A nominal [10.4] inch center to center distance between fuel assemblies placed in [the low density fuel storage racks],]

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

- [e. New or partially spent fuel assemblies with a discharge burnup in the “acceptable range” of Figure [3.7.18-1] may be allowed unrestricted storage in [either] fuel storage rack(s), and]
- [f. New or partially spent fuel assemblies with a discharge burnup in the “unacceptable range” of Figure [3.7.18-1] will be stored in compliance with the NRC approved [specific document containing the analytical methods, title, date, or specific configuration or figure].]

4.3.1.2 The new fuel storage racks are designed and shall be maintained with:

- a. Fuel assemblies having a maximum U-235 enrichment of [4.5] weight percent,
- b. $k_{\text{eff}} \leq 0.98$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in [Section 9.1 of the FSAR],
- c. $k_{\text{eff}} \leq 0.98$ if moderated by aqueous foam, which includes an allowance for uncertainties as described in [Section 9.1 of the FSAR], and
- d. A nominal [10] inch center to center distance between fuel assemblies placed in the 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 [23 ft].

4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than [1542] fuel assemblies.

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

-----REVIEWER'S NOTES-----

1. Titles for members of the unit staff shall be specified by use of an overall statement referencing an ANSI Standard acceptable to the NRC staff from which the titles were obtained, or an alternative title may be designated for this position. Generally, the first method is preferable; however, the second method is adaptable to those unit staffs requiring special titles because of unique organizational structures.
2. The ANSI Standard shall be the same ANSI Standard referenced in Section 5.3, Unit Staff Qualifications. If alternative titles are used, all requirements of these Technical Specifications apply to the position with the alternative title as apply with the specified title. Unit staff titles shall be specified in the Final Safety Analysis Report or Quality Assurance Plan. Unit staff titles shall be maintained and revised using those procedures approved for modifying/revising the Final Safety Analysis Report or Quality Assurance Plan.

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- 5.1.1 The plant manager shall be responsible for overall unit operation and shall delegate in writing the succession to this responsibility during his absence.

The plant manager or his designee shall approve, prior to implementation, each proposed test, experiment or modification to systems or equipment that affect nuclear safety.

- 5.1.2 The [Shift Supervisor (SS)] shall be responsible for the control room command function. During any absence of the [SS] from the control room while the unit is in MODE 1, 2, 3, or 4, an individual with an active Senior Reactor Operator (SRO) license shall be designated to assume the control room command function. During any absence of the [SS] from the control room while the unit is in MODE 5 or 6, an individual with an active SRO license or Reactor Operator license shall be designated to assume the control room command function.
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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 safety of the nuclear power plant.

- a. Lines of authority, responsibility, and communication shall be defined and established throughout highest management levels, intermediate levels, and all operating organization positions. These relationships shall be documented and updated, as appropriate, in organization charts, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements including the plant-specific titles of those personnel fulfilling the responsibilities of the positions delineated in these Technical Specifications shall be documented in the [FSAR/QA Plan],
- b. The plant manager shall be responsible for overall safe operation of the plant and shall have control over those onsite activities necessary for safe operation and maintenance of the plant,
- c. A specified corporate officer 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, carry out health physics, or perform quality assurance functions may report to the appropriate onsite manager; however, these individuals shall have sufficient organizational freedom to ensure their independence from operating pressures.

5.2.2 Unit Staff

The unit staff organization shall include the following:

- a. A non-licensed operator shall be assigned to each reactor containing fuel and an additional non-licensed operator shall be assigned for each control room from which a reactor is operating in MODES 1, 2, 3, or 4.

-----REVIEWER'S NOTE-----
Two unit sites with both units shutdown or defueled require a total of three non-licensed operators for the two units.

5.2 Organization

5.2.2 Unit Staff (continued)

- b. Shift crew composition may be less than the minimum requirement of 10 CFR 50.54(m)(2)(i) and 5.2.2.a and 5.2.2.e 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.
 - c. A radiation protection technician shall be on site when fuel is in the reactor. The position may be vacant for not more than 2 hours, in order to provide for unexpected absence, provided immediate action is taken to fill the required position.
 - d. The operations manager or assistant operations manager shall hold an SRO license.
 - e. An individual shall provide advisory technical support to the unit operations shift crew in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit. This individual shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift.
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5.0 ADMINISTRATIVE CONTROLS

5.3 Unit Staff Qualifications

-----REVIEWER'S NOTE-----

Minimum qualifications for members of the unit staff shall be specified by use of an overall qualification statement referencing an ANSI Standard acceptable to the NRC staff or 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 unique organizational structures.

- 5.3.1 Each member of the unit staff shall meet or exceed the minimum qualifications of [Regulatory Guide 1.8, Revision 2, 1987, or more recent revisions, or ANSI Standard acceptable to the NRC staff]. [The staff not covered by Regulatory Guide 1.8 shall meet or exceed the minimum qualifications of Regulations, Regulatory Guides, or ANSI Standards acceptable to NRC staff].
- 5.3.2 For the purpose of 10 CFR 55.4, a licensed Senior Reactor Operator (SRO) and a licensed Reactor Operator (RO) are those individuals who, in addition to meeting the requirements of Specification 5.3.1, perform the functions described in 10 CFR 50.54(m).
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5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

5.4.1 Written procedures shall be established, implemented, and maintained covering the following activities:

- a. The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978,
- b. The emergency operating procedures required to implement the requirements of NUREG-0737 and to NUREG-0737, Supplement 1, as stated in [Generic Letter 82-33],
- c. Quality assurance for effluent and environmental monitoring,
- d. Fire Protection Program implementation, and
- e. All programs specified in Specification 5.5.
- [f. Modification of core protection calculator (CPC) addressable constants. These procedures shall include provisions to ensure that sufficient margin is maintained in CPC type I addressable constants to avoid excessive operator interaction with 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, which 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.]

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

The following programs shall be established, implemented, and maintained.

5.5.1 Offsite Dose Calculation Manual (ODCM)

- a. The ODCM shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the radiological environmental monitoring program and
- b. The ODCM shall also contain the radioactive effluent controls and radiological environmental monitoring activities, and descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Radioactive Effluent Release Reports required by Specification [5.6.1] and Specification [5.6.2].

Licensee initiated changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:
 1. Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s) and
 2. A determination that the change(s) maintain the levels of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, and 10 CFR 50, Appendix I, and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations,
- b. Shall become effective after the approval of the plant manager, and
- c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the 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 (i.e., month and year) the change was implemented.

5.5 Programs and Manuals

5.5.2 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 [Low Pressure Injection, Reactor Building Spray, Makeup and Purification, and Hydrogen Recombiner]. The program shall include the following:

- a. Preventive maintenance and periodic visual inspection requirements and
- b. Integrated leak test requirements for each system at least once per [18] months.

The provisions of SR 3.0.2 are applicable.

[5.5.3 Post Accident Sampling

-----REVIEWER'S NOTE-----

This program may be eliminated based on the implementation of Topical Report CE NPSD-1157, Rev. 1, "Technical Justification for the Elimination of the Post-Accident Sampling System from the Plant Design and Licensing Basis for CEOG Utilities," and the associated NRC Safety Evaluation dated May 16, 2000, and implementation of the following commitments:

1. [Licensee] has developed contingency plans for obtaining and analyzing highly radioactive samples of reactor coolant, containment sump, and containment atmosphere. The contingency plans will be contained in emergency plan implementing procedures and implemented with the implementation of the License amendment. Establishment of contingency plans is considered a regulatory commitment.
2. The capability for classifying fuel damage events at the Alert level threshold has been established for [PLANT] at radioactivity levels of 300 mCi/cc dose equivalent iodine. This capability may utilize the normal sampling system and/or correlations of sampling or letdown line dose rates to coolant concentrations. This capability will be described in emergency plan implementing procedures and implemented with the implementation of the License amendment. The capability for classifying fuel damage events is considered a regulatory commitment.
3. [Licensee] has established the capability to monitor radioactive iodines that have been released to offsite environs. This capability is described in our emergency plan implementing procedures. The capability to monitor radioactive iodines is considered a regulatory commitment..

This program provides controls that ensure the capability to obtain and analyze reactor coolant, radioactive gases, and particulates in plant gaseous effluents

5.5 Programs and Manuals

5.5.3 Post Accident Sampling (continued)

and containment atmosphere samples under accident conditions. The program shall include the following:

- a. Training of personnel,
- b. Procedures for sampling and analysis, and
- c. Provisions for maintenance of sampling and analysis equipment.]

5.5.4 Radioactive Effluent Controls Program

This program conforms to 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 procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- a. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,
- b. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to ten times the concentration values in Appendix B, Table 2, Column 2 to 10 CFR 20.1001-20.2402,
- c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM,
- d. 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 10 CFR 50, Appendix I,
- e. Determination of cumulative 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. Determination of projected dose contributions from radioactive effluents in accordance with the methodology in the ODCM at least every 31 days,
- f. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2% of the guidelines for the annual dose or dose commitment, conforming to 10 CFR 50, Appendix I,

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5.5.4 Radioactive Effluent Controls Program (continued)

- g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the site boundary shall be in accordance with the following:
 - 1. For noble gases: a dose rate ≤ 500 mrem/yr to the whole body and a dose rate ≤ 3000 mrem/yr to the skin and
 - 2. For iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days: a dose rate ≤ 1500 mrem/yr to any organ,
- h. 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 10 CFR 50, Appendix I,
- i. 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 > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I, and
- j. Limitations on the annual dose or dose commitment to any member of the public, beyond the site boundary, due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 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.

[5.5.6 Pre-Stressed Concrete Containment Tendon Surveillance Program

This program provides controls for monitoring any tendon degradation in pre-stressed concrete containments, including effectiveness of its corrosion protection medium, to ensure containment structural integrity. The program shall include baseline measurements prior to initial operations. The Tendon Surveillance Program, inspection frequencies, and acceptance criteria shall be in accordance with Section XI, Subsection IWL of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10CFR 50.55a, except where an alternative, exemption, or relief has been authorized by the NRC.

The provisions of SR 3.0.3 are applicable to the Tendon Surveillance Program inspection frequencies.]

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5.5.7 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel per the recommendation of Regulatory position c.4.b of Regulatory Guide 1.14, Revision 1, August 1975.

5.5.8 Steam Generator (SG) Program

An SG Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the SG Program shall include the following:

- a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the "as found" condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The "as found" condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging [or repair] of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected, plugged, [or repaired] to confirm that the performance criteria are being met.
- b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.
 1. Structural integrity performance criterion: All in-service SG tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down), all anticipated transients included in the design specification, and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary-to-secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary-to-secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.
 2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Program (continued)

all SGs and leakage rate for an individual SG. Leakage is not to exceed [1 gpm] per SG [, except for specific types of degradation at specific locations as described in paragraph c of the SG Program.]

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.13, "RCS Operational LEAKAGE."
- c. Provisions for SG tube plugging [or repair] criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding [40%] of the nominal tube wall thickness shall be plugged [or repaired].

-----REVIEWER'S NOTE-----

Alternate tube plugging [or repair] criteria currently permitted by plant technical specifications are listed here. The description of these alternate tube plugging [or repair] criteria should be equivalent to the descriptions in current technical specifications and should also include any allowed accident induced leakage rates for specific types of degradation at specific locations associated with tube plugging [or repair] criteria.

[The following alternate tube plugging [or repair] criteria may be applied as an alternative to the 40% depth based criteria:

1. . . .]

-----REVIEWER'S NOTE-----

The bracketed phrase in Paragraph d regarding exempt portions of the tube is only applicable to SGs with Alloy 600 thermally treated tubing.

- d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet [except for any portions of the tube that are exempt from inspection by alternate repair criteria], and that may satisfy the applicable tube plugging [or repair] criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. A degradation assessment shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

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5.5.8 Steam Generator (SG) Program (continued)

-----REVIEWER'S NOTE-----
Plants are to include the appropriate Frequency (e.g., select the appropriate Item 2.) for their SG design. The first Item 2 is applicable to SGs with Alloy 600 mill annealed tubing. The second Item 2 is applicable to SGs with Alloy 600 thermally treated tubing. The third Item 2 is applicable to SGs with Alloy 690 thermally treated tubing.

1. Inspect 100% of the tubes in each SG during the first refueling outage following SG installation.
- [2. After the first refueling outage following SG installation, inspect 100% of the tubes in each SG at least every 24 effective full power months, which defines the inspection period.]
- [2. After the first refueling outage following SG installation, inspect 100% of the tubes in each SG at least every 54 effective full power months, which defines the inspection period. If none of the SG tubes have ever experienced cracking other than in regions that are exempt from inspection by alternate repair criteria and the SG inspection was performed with enhanced probes, the inspection period may be extended to 72 effective full power months. Enhanced probes have a capability to detect flaws of any type equivalent to or better than array probe technology. The enhanced probes shall be used from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet except any portions of the tube that are exempt from inspection by alternate repair criteria. If there are regions where enhanced probes cannot be used, the tube inspection techniques shall be capable of detecting all forms of existing and potential degradation in that region.]
- [2. After the first refueling outage following SG installation, inspect 100% of the tubes in each SG at least every 96 effective full power months, which defines the inspection period.]

-----REVIEWER'S NOTE-----
The bracketed phrases in Paragraph 3 are only applicable to SGs with Alloy 600 thermally treated tubing.

3. If crack indications are found in any SG tube [excluding any region that is exempt from inspection by alternate repair criteria], then the next inspection for each affected and potentially affected SG for the degradation mechanism that caused the crack indication shall be at the next refueling outage [, but may be deferred to the following refueling

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Program (continued)

outage if the 100% inspection of all SGs was performed with enhanced probes as described in paragraph d.2]. If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

- e. Provisions for monitoring operational primary to secondary LEAKAGE.
- [f. Provisions for SG tube repair methods. SG tube repair methods shall provide the means to reestablish the RCS pressure boundary integrity of SG tubes without removing the tube from service. For the purposes of these Specifications, tube plugging is not a repair. All acceptable tube repair methods are listed below.

-----REVIEWER'S NOTE-----

Tube repair methods currently permitted by plant technical specifications are to be listed here. The description of these tube repair methods should be equivalent to the descriptions in current technical specifications. If there are no approved tube repair methods, this section should not be used.

- 1. . . .]

5.5.9 Secondary Water Chemistry Program

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:

- a. Identification of a sampling schedule for the critical variables and control points for these variables,
- b. Identification of the procedures used to measure the values of the critical variables,
- c. Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in leakage,
- d. Procedures for the recording and management of data,
- e. Procedures defining corrective actions for all off control point chemistry conditions, and

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5.5.9 Secondary Water Chemistry Program (continued)

- f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

5.5.10 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in [Regulatory Guide], and in accordance with [Regulatory Guide 1.52, Revision 2, ASME N510-1989, and AG-1] at the system flowrate specified below [$\pm 10\%$].

- a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [$\pm 10\%$].

ESF Ventilation System	Flowrate
[]	[]

- b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [$\pm 10\%$].
- c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in [Regulatory Guide 1.52, Revision 2], shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity specified below.

ESF Ventilation System	Penetration	RH	Face Velocity
[]	[See Reviewer's Note]	[See Reviewer's Note]	[See Reviewer's Note]

-----REVIEWER'S NOTE-----

The use of any standard other than ASTM D3803-1989 to test the charcoal sample may result in an overestimation of the capability of the charcoal to adsorb radioiodine. As a result, the ability of the charcoal filters to perform in a manner consistent with the licensing basis for the facility is indeterminate.

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5.5.10 Ventilation Filter Testing Program (continued)

ASTM D 3803-1989 is a more stringent testing standard because it does not differentiate between used and new charcoal, it has a longer equilibration period performed at a temperature of 30°C (86°F) and a relative humidity (RH) of 95% (or 70% RH with humidity control), and it has more stringent tolerances that improve repeatability of the test.

Allowable Penetration = [(100% - Methyl Iodide Efficiency * for Charcoal Credited in Licensee's Accident Analysis) / Safety Factor]

When ASTM D3803-1989 is used with 30°C (86°F) and 95% RH (or 70% RH with humidity control) is used, the staff will accept the following:

Safety factor ≥ 2 for systems with or without humidity control.

Humidity control can be provided by heaters or an NRC-approved analysis that demonstrates that the air entering the charcoal will be maintained less than or equal to 70 percent RH under worst case design basis conditions.

If the system has a face velocity greater than 110 percent of 0.203 m/s (40 ft/min), the face velocity should be specified.

*This value should be the efficiency that was incorporated in the licensee's accident analysis which was reviewed and approved by the staff in a safety evaluation.

-
- d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than the value specified below when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [$\pm 10\%$].

ESF Ventilation System	Delta P	Flowrate
[]	[]	[]

- [e. Demonstrate that the heaters for each of the ESF systems dissipate the value specified below [$\pm 10\%$] when tested in accordance with [ASME N510-1989].

ESF Ventilation System	Wattage]
[]	[]

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

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5.5.11 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the [Waste Gas Holdup System], [the quantity of radioactivity contained in gas storage tanks or fed into the offgas treatment system, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks]. The gaseous radioactivity quantities shall be determined following the methodology in [Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure"]. The liquid radwaste quantities shall be determined in accordance with [Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures"].

The program shall include:

- a. The limits for concentrations 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),
- b. A surveillance program to ensure that the quantity of radioactivity contained in [each gas storage tank and fed into the offgas treatment system] is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual in an unrestricted area, in the event of [an uncontrolled release of the tanks' contents], and
- c. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the [Liquid Radwaste Treatment System] is less than the amount that would result in concentrations less than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

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5.5.12 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

- a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:
 1. An API gravity or an absolute specific gravity within limits,
 2. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and
 3. A clear and bright appearance with proper color or a water and sediment content within limits,
- b. Within 31 days following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a., above, are within limits for ASTM 2D fuel oil, and
- c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program test frequencies.

5.5.13 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

- a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.
- b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:
 1. A change in the TS incorporated in the license or
 2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.
- c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

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5.5.13 Technical Specifications (TS) Bases Control Program (continued)

- d. Proposed changes that meet the criteria of 5.5.13b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.14 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

- a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected,
- b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists,
- c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities, and
- d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, no concurrent loss of offsite power, or no concurrent loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and

- a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable, or
- b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable, or
- c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

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5.5.14 Safety Function Determination Program (SFDP) (continued)

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5.15 Containment Leakage Rate Testing Program

[OPTION A]

- a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option A, as modified by approved exemptions.
- b. The maximum allowable containment leakage rate, L_a at P_a , shall be []% of containment air weight per day.
- c. Leakage rate acceptance criteria are:
 1. Containment leakage rate acceptance criterion is $\leq 1.0 L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $< 0.60 L_a$ for the Type B and C tests and $< 0.75 L_a$ for Type A tests.
 2. Air lock testing acceptance criteria are:
 - a) Overall air lock leakage rate is $\leq [0.05 L_a]$ when tested at $\geq P_a$.
 - b) For each door, leakage rate is $\leq [0.01 L_a]$ when pressurized to $[\geq 10 \text{ psig}]$.
- d. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.
- e. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

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5.5.15 Containment Leakage Rate Testing Program (continued)

[OPTION B]

- a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:
 1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.
 2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.
 - [3. . . .]
- b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a is [45 psig]. The containment design pressure is [50 psig].
- c. The maximum allowable containment leakage rate, L_a at P_a , shall be []% of containment air weight per day.
- d. Leakage rate acceptance criteria are:
 1. Containment leakage rate acceptance criterion is $\leq 1.0 L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $< 0.60 L_a$ for the Type B and C tests and $\leq 0.75 L_a$ for Type A tests.
 2. Air lock testing acceptance criteria are:
 - a) Overall air lock leakage rate is $\leq [0.05 L_a]$ when tested at $\geq P_a$.
 - b) For each door, leakage rate is $\leq [0.01 L_a]$ when pressurized to ≥ 10 psig].

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5.5.15 Containment Leakage Rate Testing Program (continued)

- e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.
- f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

[OPTION A/B Combined]

- a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J. [Type A][Type B and C] test requirements are in accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions. [Type B and C] [Type A] test requirements are in accordance with 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. The 10 CFR 50, Appendix J, Option B test requirements shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

- 1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.
- 2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

[3. . . .]

- b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a is [45 psig]. The containment design pressure is [50 psig].
- c. The maximum allowable containment leakage rate, L_a , at P_a , shall be []% of containment air weight per day.

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5.5.15 Containment Leakage Rate Testing Program (continued)

- d. Leakage rate acceptance criteria are:
 - 1. Containment leakage rate acceptance criterion is $\leq 1.0 L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $< 0.60 L_a$ for the Type B and C tests and [$< 0.75 L_a$ for Option A Type A tests] [$\leq 0.75 L_a$ for Option B Type A tests].
 - 2. Air lock testing acceptance criteria are:
 - a) Overall air lock leakage rate is $\leq [0.05 L_a]$ when tested at $\geq P_a$.
 - b) For each door, leakage rate is $\leq [0.01 L_a]$ when pressurized to ≥ 10 psig].
- e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.
- f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.16 Battery Monitoring and Maintenance Program

-----REVIEWER'S NOTE-----
This program and the corresponding requirements in LCO 3.8.4, LCO 3.8.5, and LCO 3.8.6 require providing the information and verifications requested in the Notice of Availability for TSTF-500, Revision 2, "DC Electrical Rewrite - Update to TSTF-360," (76FR54510).

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

- a. The program allows the following RG 1.129, Revision 2 exceptions:
 - 1. Battery temperature correction may be performed before or after conducting discharge tests.
 - 2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.

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5.5.16 Battery Monitoring and Maintenance Program (continued)

3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."
 4. In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage."
 5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration," the following may be used: "Following the test, record the float voltage of each cell of the string."
- b. The program shall include the following provisions:
1. Actions to restore battery cells with float voltage $< [2.13] \text{ V}$;
 2. Actions to determine whether the float voltage of the remaining battery cells is $\geq [2.13] \text{ V}$ when the float voltage of a battery cell has been found to be $< [2.13] \text{ V}$;
 3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;
 4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and
 5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

5.5 Programs and Manuals

5.5.17 Control Room Envelope (CRE) Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Air Cleanup System (CREACS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

- a. The definition of the CRE and the CRE boundary.
- b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.
- c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

[The following are exceptions to Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

1. ;and]

- d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREACS, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the [18] month assessment of the CRE boundary.

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5.5.17 Control Room Envelope (CRE) Habitability Program (continued)

- e. The quantitative limits on unfiltered air leakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air leakage measured by the testing described in paragraph c. The unfiltered air leakage limit for radiological challenges is the leakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air leakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.
- f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered leakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

[5.5.18 Setpoint Control Program

-----REVIEWER'S NOTE-----
Adoption of a Setpoint Control Program requires changes to other technical specifications. See TSTF-493, Revision 4, "Clarify Application of Setpoint Methodology for LSSS Functions," Option B, for guidance (Agencywide Documents Access and Management System (ADAMS) Accession Number ML101160026).

This program shall establish the requirements for ensuring that setpoints for automatic protective devices are initially within and remain within the assumptions of the applicable safety analyses, provides a means for processing changes to instrumentation setpoints, and identifies setpoint methodologies to ensure instrumentation will function as required. The program shall ensure that testing of automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A) verifies that instrumentation will function as required.

- a. The program shall list the Functions in the following specifications to which it applies:
 - 1. LCO 3.3.1, "Reactor Protective System (RPS) Instrumentation - Operating [(Analog)] [(Digital)];"

5.5 Programs and Manuals

5.5.18 Setpoint Control Program (continued)

2. LCO 3.3.2, "Reactor Protective System (RPS) Instrumentation - Shutdown [(Analog)] [(Digital)];"
3. LCO [3.3.3, "Control Element Assembly Calculators (CEACs) (Digital);"
4. [LCO 3.3.4, "Engineered Safety Features Actuation System (ESFAS) Instrumentation (Analog);" [LCO 3.3.5, "Engineered Safety Features Actuation System (ESFAS) Instrumentation (Digital);"
5. [LCO 3.3.6, "Diesel Generator (DG) - Loss of Voltage Start (LOVS) (Analog);" [LCO 3.3.7, "Diesel Generator (DG) - Loss of Voltage Start (LOVS) (Digital);"
6. [LCO 3.3.7, "Containment Purge Isolation Signal (CPIS) (Analog);" [LCO 3.3.8, "Containment Purge Isolation Signal (CPIS) (Digital);"
7. [LCO 3.3.8, "Control Room Isolation Signal (CRIS) (Analog);" [LCO 3.3.9, "Control Room Isolation Signal (CRIS) (Digital);"
8. [LCO 3.3.9, "Chemical and Volume Control System (CVCS) Isolation Signal (Analog);"
9. [LCO 3.3.10, "Fuel Handling Isolation Signal (FHIS) (Digital);"
10. LCO 3.3.13, "[Logarithmic] Power Monitoring Channels [(Analog).] [(Digital).]"

- b. The program shall require the [Limiting Trip Setpoint (LTSP)], [Nominal Trip Setpoint (NTSP)], Allowable Value (AV), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) (as applicable) of the Functions described in paragraph a. are calculated using the NRC approved setpoint methodology, as listed below. In addition, the program shall contain the value of the [LTSP], [NTSP], AV, AFT, and ALT (as applicable) for each Function described in paragraph a. and shall identify the setpoint methodology used to calculate these values.

----- Reviewer's Note -----
List the NRC safety evaluation report by letter, date, and ADAMS accession number (if available) that approved the setpoint methodologies.

1. [Insert reference to NRC safety evaluation that approved the setpoint methodology.]

- c. The program shall establish methods to ensure that Functions described in paragraph a. will function as required by verifying the as-left and as-found settings are consistent with those established by the setpoint methodology.

5.5 Programs and Manuals

5.5.18 Setpoint Control Program (continued)

- d. -----REVIEWER'S NOTE-----
- A license amendment request to implement a Setpoint Control Program must list the instrument functions to which the program requirements of paragraph d. will be applied. Paragraph d. shall apply to all Functions in the Reactor Protection System and Engineered Safety Feature Actuation System specifications unless one or more of the following exclusions apply:
1. Manual actuation circuits, automatic actuation logic circuits or to instrument functions that derive input from contacts which have no associated sensor or adjustable device, e.g., limit switches, breaker position switches, manual actuation switches, float switches, proximity detectors, etc. are excluded. In addition, those permissives and interlocks that derive input from a sensor or adjustable device that is tested as part of another TS function are excluded.
 2. Settings associated with safety relief valves are excluded. The performance of these components is already controlled (i.e., trended with as-left and as-found limits) under the ASME Code for Operation and Maintenance of Nuclear Power Plants testing program.
 3. Functions and Surveillance Requirements which test only digital components are normally excluded. There is no expected change in result between SR performances for these components. Where separate as-left and as-found tolerance is established for digital component SRs, the requirements would apply.

The program shall identify the Functions described in paragraph a. that are automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A). The [LTSP] of these Functions are Limiting Safety System Settings. These Functions shall be demonstrated to be functioning as required by applying the following requirements during CHANNEL CALIBRATIONS and CHANNEL FUNCTIONAL TESTS that verify the [LTSP or NTSP].

- 1 The as-found value of the instrument channel trip setting shall be compared with the previous as-left value or the specified [LTSP or NTSP].
2. If the as-found value of the instrument channel trip setting differs from the previous as-left value or the specified [LTSP or NTSP] by more than the pre-defined test acceptance criteria band (i.e., the specified AFT), then the instrument channel shall be evaluated before declaring the SR met and returning the instrument channel to service. This condition shall be entered in the plant corrective action program.

5.5 Programs and Manuals

5.5.18 Setpoint Control Program (continued)

3. If the as-found value of the instrument channel trip setting is less conservative than the specified AV, then the SR is not met and the instrument channel shall be immediately declared inoperable.
 4. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the [LTSP or NTSP] at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the [LTSP or NTSP] provided that the as-found and as-left tolerances apply to the actual setpoint used to confirm channel performance).
- e. The program shall be specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].]

[5.5.19 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

- a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.
- b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.
- c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

[5.5.20 Risk Informed Completion Time Program

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI 06-09-A, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines." The program shall include the following:

- a. The RICT may not exceed 30 days;

5.5 Programs and Manuals

5.5.20 Risk Informed Completion Time Program (continued)

----- REVIEWER'S NOTE -----

The Risk Informed Completion Time is only applicable in MODES supported by the licensee's PRA. Licensees applying the RICT Program to MODES other than MODES 1 and 2 must demonstrate that they have the capability to calculate a RICT in those MODES or that the risk indicated by their MODE 1 and 2 PRA model is bounding with respect to the lower MODE conditions.

- b. A RICT may only be utilized in MODE 1, 2 [, and 3, and MODE 4 while relying on steam generators for heat removal];
- c. When a RICT is being used, any change to the plant configuration, as defined in NEI 06-09-A, Appendix A, must be considered for the effect on the RICT.
 - 1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.
 - 2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.
 - 3. Revising the RICT is not required if the plant configuration change would lower plant risk and would result in a longer RICT.
- d. For emergent conditions, if the extent of condition evaluation for inoperable structures, systems, or components (SSCs) is not complete prior to exceeding the Completion Time, the RICT shall account for the increased possibility of common cause failure (CCF) by either:
 - 1. Numerically accounting for the increased possibility of CCF in the RICT calculation; or
 - 2. Risk Management Actions (RMAs) not already credited in the RICT calculation shall be implemented that support redundant or diverse SSCs that perform the function(s) of the inoperable SSCs, and, if practicable, reduce the frequency of initiating events that challenge the function(s) performed by the inoperable SSCs.

5.5 Programs and Manuals

5.5.20 Risk Informed Completion Time Program (continued)

- e. The risk assessment approaches and methods shall be acceptable to the NRC. The plant PRA shall be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant, as specified in Regulatory Guide 1.200, Revision 2. Methods to assess the risk from extending the Completion Times must be PRA methods used to support this license amendment, or other methods approved by the NRC for generic use; and any change in the PRA methods to assess risk that are outside these approval boundaries require prior NRC approval.]

[5.5.21 Spent Fuel Storage Rack Neutron Absorber Monitoring Program

This Program provides controls for monitoring the condition of the neutron absorber used in the spent fuel pool storage racks to verify the Boron-10 areal density is consistent with the assumptions in the spent fuel pool criticality analysis. The program shall be in accordance with NEI 16-03-A, "Guidance for Monitoring of Fixed Neutron Absorbers in Spent Fuel Pools," Revision 0, May 2017 [, with the following exceptions:

1. ...].]
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5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

The following reports shall be submitted in accordance with 10 CFR 50.4.

5.6.1 Annual Radiological Environmental Operating Report

-----NOTE-----
[A single submittal may be made for a multiple unit station. The submittal should combine sections 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 Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

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]. 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 in a supplementary report as soon as possible.

5.6.2 Radiological Effluent Release Report

-----NOTE-----
[A single submittal may be made for a multiple unit station. The submittal shall combine sections 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 Radioactive Effluent Release Report covering the operation of the unit in the previous year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. 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 and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.

5.6 Reporting Requirements

5.6.3 CORE OPERATING LIMITS REPORT

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

[The individual specifications that address core operating limits must be referenced here.]

- 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:

-----REVIEWER'S NOTE-----
Licensees that have received prior NRC approval to relocate Topical Report revision numbers and dates to licensee control need only list the number and title of the Topical Report, and the COLR will contain the complete identification for each of the Technical Specification referenced Topical Reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements). See NRC ADAMS Accession No: ML110660285 for details.

[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 assuming operation up to RATED THERMAL POWER 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 SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.4 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT

- a. RCS pressure and temperature limits for heat up, cooldown, low temperature operation, criticality, and hydrostatic testing as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:

[The individual specifications that address RCS pressure and temperature limits must be referenced here.]

5.6 Reporting Requirements

5.6.4 RCS Pressure and Temperature Limits Report (continued)

- b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

-----REVIEWER'S NOTE-----
Licensees that have received prior NRC approval to relocate Topical Report revision numbers and dates to licensee control need only list the number and title of the Topical Report, and the PTLR will contain the complete identification for each of the Technical Specification referenced Topical Reports used to prepare the PTLR (i.e., report number, title, revision, date, and any supplements). See NRC ADAMS Accession No: ML110660285 for details.

[Identify the NRC staff approval document by date.]

- c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period and for any revision or supplement thereto.

-----REVIEWER'S NOTE-----
The methodology for the calculation of the P-T limits for NRC approval should include the following provisions:

1. The methodology shall describe how the neutron fluence is calculated (reference new Regulatory Guide when issued).
2. The Reactor Vessel Material Surveillance Program shall comply with Appendix H to 10 CFR 50. The reactor vessel material irradiation surveillance specimen removal schedule shall be provided, along with how the specimen examinations shall be used to update the PTLR curves.
3. Low Temperature Overpressure Protection (LTOP) System lift setting limits for the Power Operated Relief Valves (PORVs), developed using NRC-approved methodologies may be included in the PTLR.
4. The adjusted reference temperature (ART) for each reactor beltline material shall be calculated, accounting for radiation embrittlement, in accordance with Regulatory Guide 1.99, Revision 2.
5. The limiting ART shall be incorporated into the calculation of the pressure and temperature limit curves in accordance with NUREG-0800 Standard Review Plan 5.3.2, Pressure-Temperature Limits.
6. The minimum temperature requirements of Appendix G to 10 CFR Part 50 shall be incorporated into the pressure and temperature limit curves.

5.6 Reporting Requirements

5.6.4 RCS Pressure and Temperature Limits Report (continued)

7. Licensees who have removed two or more capsules should compare for each surveillance material the measured increase in reference temperature (RT_{NDT}) to the predicted increase in RT_{NDT} ; where the predicted increase in RT_{NDT} is based on the mean shift in RT_{NDT} plus the two standard deviation value ($2\sigma_{\Delta}$) specified in Regulatory Guide 1.99, Revision 2. If the measured value exceeds the predicted value (increase in $RT_{NDT} + 2\sigma_{\Delta}$), the licensee should provide a supplement to the PTLR to demonstrate how the results affect the approved methodology.
-

5.6.5 Post Accident Monitoring Report

When a report is required by Condition B or F of LCO 3.3.[11], "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.6 Tendon Surveillance Report

[Any abnormal degradation of the containment structure detected during the tests required by the Pre-stressed Concrete Containment Tendon Surveillance Program shall be reported to the NRC within 30 days. The report shall include a description of the tendon condition, the condition of the concrete (especially at tendon anchorages), the inspection procedures, the tolerances on cracking, and the corrective action taken.]

5.6.7 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.9, "Steam Generator (SG) Program." The report shall include:

- a. The scope of inspections performed on each SG;
- b. The nondestructive examination techniques utilized for tubes with increased degradation susceptibility;
- c. For each degradation mechanism found:
 1. The nondestructive examination techniques utilized;

5.6 Reporting Requirements

5.6.7 Steam Generator Tube Inspection Report (continued)

2. The location, orientation (if linear), measured size (if available), and voltage response for each indication. For tube wear at support structures less than 20 percent through-wall, only the total number of indications needs to be reported;
 3. A description of the condition monitoring assessment and results, including the margin to the tube integrity performance criteria and comparison with the margin predicted to exist at the inspection by the previous forward-looking tube integrity assessment;
 4. The number of tubes plugged [or repaired] during the inspection outage; and
 - [5. The repair methods utilized and the number of tubes repaired by each repair method.]
- d. An analysis summary of the tube integrity conditions predicted to exist at the next scheduled inspection (the forward-looking tube integrity assessment) relative to the applicable performance criteria, including the analysis methodology, inputs, and results;
 - e. The number and percentage of tubes plugged [or repaired] to date, and the effective plugging percentage in each SG;
 - f. The results of any SG secondary side inspections; and
 - [g. Insert any plant-specific reporting requirements, if applicable.]
-
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5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation

- a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.
- b. Access to, and activities in, each such area shall be controlled by means of Radiation Work Permit (RWP) or equivalent that includes specification or radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measurers.
- c. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.
- d. Each individual or group entering such an area shall possess:
 1. A radiation monitoring device that continuously displays radiation dose rates in the area, or
 2. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or
 3. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or
 4. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,

5.7 High Radiation Area

5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation (continued)

- (i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or
 - (ii) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, or personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.
- e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation

- a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door or gate that prevents unauthorized entry, and, in addition:
 - 1. All such door and gate keys shall be maintained under the administrative control of the shift supervisor, radiation protection manager, or his or her designee.
 - 2. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.
- b. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

5.7 High Radiation Area

5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation (continued)

- c. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.
- d. Each individual or group entering such an area shall possess:
 - 1. A radiation monitoring device that continuously integrates the radiation rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or
 - 2. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or
 - 3. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and
 - (i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or
 - (ii) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area.
 - 4. In those cases where options (2) and (3), above, are impractical or determined to be inconsistent with the "As Low As is Reasonably Achievable" principle, a radiation monitoring device that continuously displays radiation dose rates in the area.

5.7 High Radiation Area

5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation (continued)

- e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

 - f. Such individual areas that are within a larger area where no enclosure exists for the purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, nor continuously guarded, but shall be barricaded, conspicuously posted, and a clearly visible flashing light shall be activated at the area as a warning device.
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11. ABSTRACT (200 words or less)

This NUREG contains the improved Standard Technical Specifications (STS) for Combustion Engineering (CE) plants. The changes reflected in Revision 5 result from the experience gained from plant operation using the improved STS and extensive public technical meetings and discussions among the Nuclear Regulatory Commission (NRC) staff and various nuclear power plant licensees and the Nuclear Steam Supply System (NSSS) Owners Groups.

The improved STS were developed based on the criteria in the Final Commission Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, dated July 22, 1993 (58 FR 39132), which was subsequently codified by changes to Section 36 of Part 50 of Title 10 of the Code of Federal Regulations (10 CFR 50.36) (60 FR 36953). Licensees are encouraged to upgrade their technical specifications consistent with those criteria and conforming, to the practical extent, to Revision 5 to the improved STS. The Commission continues to place the highest priority on requests for complete conversions to the improved STS. Licensees adopting portions of the improved STS to existing technical specifications should adopt all related requirements, as applicable, to achieve a high degree of standardization and consistency.

Users may access the STS NUREGs in the PDF format at (<http://www.nrc.gov>). Users may print or download copies from the NRC Web site.

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