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Specifications

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PREFACE

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

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

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TABLE OF CONTENTS / REVISION SUMMARY — Revision – Date

3.4 REACTOR COOLANT SYSTEM (RCS) (continued)

3.7 PLANT SYSTEMS (continued)

1.0 USE AND APPLICATION

1.1 Definitions

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

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
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. $T_q = \text{Max} \; \lvert (P_{quad} - P_{avg}) / P_{avg} \rvert$
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.

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 so that the entire channel is tested.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components [excluding control element assemblies (CEAs) withdrawn into the upper guide structure], within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
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 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in

1.1 Definitions

DOSE EQUIVALENT I-131 (continued)

[Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites," or those listed in Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977, or ICRP 30, Supplement to Part 1, page 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity"].

$\bar{E}$ - AVERAGE DISINTEGRATION ENERGY

$\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > [15] minutes, making up at least 95% of the total noniodine activity in the coolant.

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

LEAKAGE

LEAKAGE shall be:

a. 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 either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE, or

1.1 Definitions

LEAKAGE (continued)

3. Reactor Coolant System (RCS) LEAKAGE through a steam generator (SG) to the Secondary System,

b. Unidentified LEAKAGE

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

c. Pressure Boundary LEAKAGE

LEAKAGE (except SG LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

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

PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation.

These tests are:

a. Described in Chapter [14, Initial Test Program] of the FSAR,

b. Authorized under the provisions of 10 CFR 50.59, or

c. Otherwise approved by the Nuclear Regulatory Commission.

1.1 Definitions

PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.6. Plant operation within these operating limits is addressed in LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," and LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System."
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of [3410] MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until 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.
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 *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.

1.1 Definitions

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	≥ [350]
4	Hot Shutdown[(b)]	< 0.99	NA	[350] > T_{avg} > [200]
5	Cold Shutdown[(b)]	< 0.99	NA	≤ [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	The purpose of this section is to explain the meaning of logical connectors. Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are <u>AND</u> and <u>OR</u>. The physical arrangement of these connectors constitutes logical conventions with specific meanings.
BACKGROUND	Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentions of the logical connectors. When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.
EXAMPLES	The following examples illustrate the use of logical connectors.

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-1

ACTIONS

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

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

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

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

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

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).

DESCRIPTION

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.

If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition.

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

However, when a <u>subsequent</u> 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 <u>first</u> inoperability and

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

1.3 Completion Times

DESCRIPTION (continued)

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 . . ." Example 1.3-3 illustrates one use of this type of Completion Time. The 10 day Completion Time specified for Conditions A and B in Example 1.3-3 may not be extended.

EXAMPLES

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-1

ACTIONS

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

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

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

EXAMPLE 1.3-3

ACTIONS

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

1.3 Completion Times

EXAMPLES (continued)

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).

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).

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

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

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.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

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

EXAMPLE 1.3-6

ACTIONS

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

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

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

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

1.3 Completion Times

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

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE

The purpose of this section is to define the proper use and application of Frequency requirements.

DESCRIPTION

Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated LCO. An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.

The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0.2, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR, as well as certain Notes in the Surveillance column that modify performance requirements.

Sometimes special situations dictate when the requirements of a Surveillance are to be met. They are "otherwise stated" conditions allowed by SR 3.0.1. They may be stated as clarifying Notes in the Surveillance, as part of the Surveillances, or both.

Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

The use of "met" or "performed" in these instances conveys specific meanings. A Surveillance is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance, even without a Surveillance specifically being "performed," constitutes a Surveillance not "met." "Performance" refers only to the requirement to specifically determine the ability to meet the acceptance criteria.

Some Surveillances contain ~~n~~Notes that modify the Frequency of performance or the conditions during which the acceptance criteria must be satisfied. For these Surveillances, the MODE-entry restrictions of SR 3.0.4 may not apply. Such a Surveillance is not required to be performed prior to entering a MODE or other specified condition in the Applicability of the associated LCO if any of the following three conditions are satisfied:

1.4 Frequency

DESCRIPTION (continued)

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

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

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

Examples 1.4-3, 1.4-4, 1.4-5, and 1.4-6 discuss~~es~~ 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, the Surveillance must be performed within the Frequency requirements of SR 3.0.2 prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4.

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 AND 24 hours thereafter

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

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

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

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches $\geq$ 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 with power $\geq$ 25% RTP.

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-5

SURVEILLANCE REQUIREMENTS

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

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

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
-----------------------------NOTE----------------------------- Only required to be met in MODE 3. ---	
Verify parameter is within limits.	24 hours

Example 1.4-[6] specifies that the requirements of this Surveillance do not have to be met while the unit is in MODE 3 (the assumed Applicability of the associated LCO is MODES 1, 2, and 3). The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), and the unit was in MODE 3, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES to enter MODE 3, 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, the peak linear heat rate (LHR) shall be $\leq$ [21.0] kW/ft.

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.

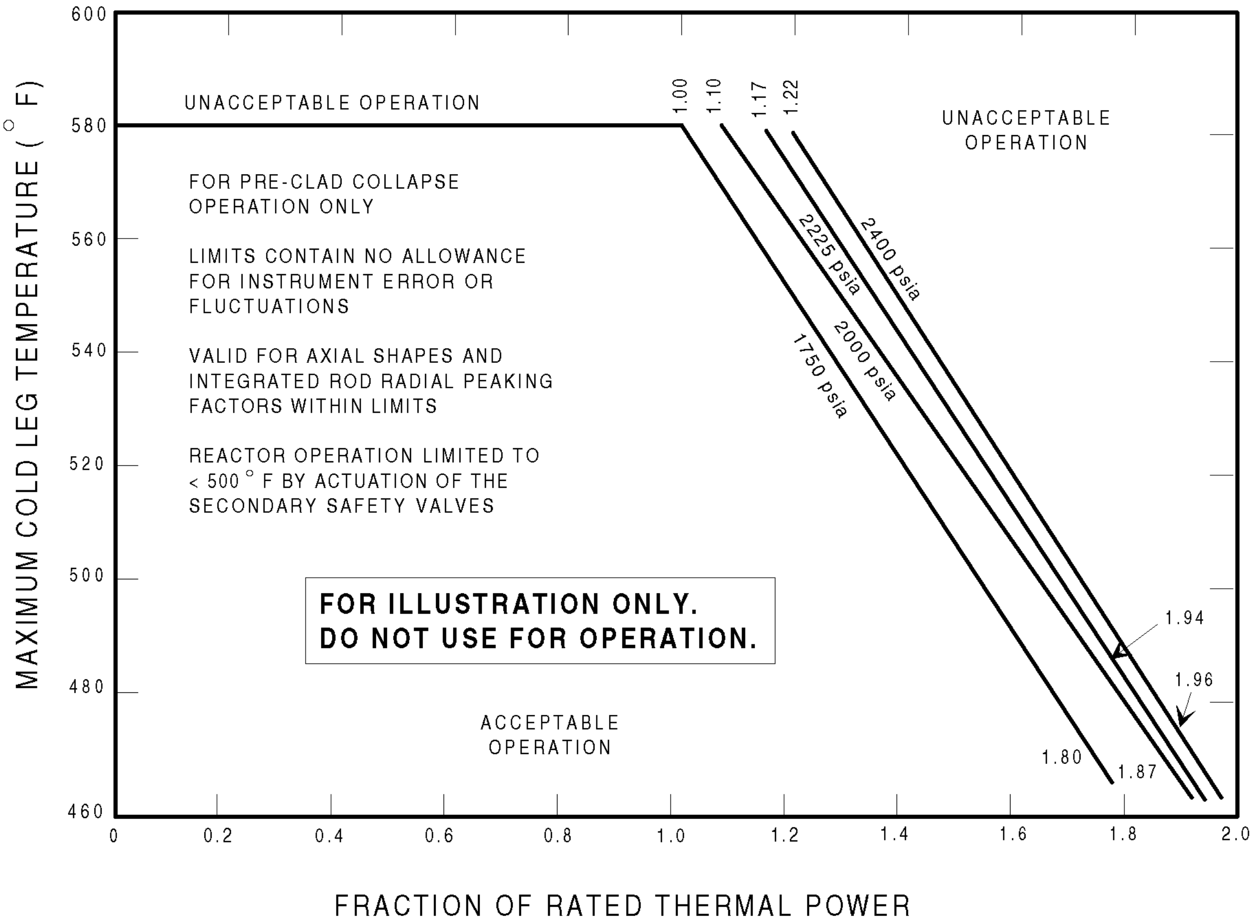

Figure 2.1.1-1 (page 1 of 1)
Reactor Core Thermal Margin Safety Limit

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 ≥ [1.19].

2.1.1.2 In MODES 1 and 2, the peak linear heat rate (LHR) shall be maintained at ≤ [21.0] kW/ft.

2.1.2 Reactor Coolant System Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained ≤ [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 and LCO 3.0.7.

LCO 3.0.2

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

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

LCO 3.0.3

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

a. MODE 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 not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

Exceptions to this Specification are stated in the individual Specifications.

LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.

3.0 LCO Applicability

LCO 3.0.4 (continued)

----------------------------------REVIEWER'S NOTE----------------------------------
LCO 3.0.4 has been revised so that changes in MODES or other specified conditions in the Applicability that are part of a shutdown of the unit shall not be prevented. In addition, LCO 3.0.4 has been revised so that it is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4. The MODE change restrictions in LCO 3.0.4 were previously applicable in all MODES. Before this version of LCO 3.0.4 can be implemented on a plant-specific basis, the licensee must review the existing technical specifications to determine where specific restrictions on MODE changes or Required Actions should be included in individual LCOs to justify this change; such an evaluation should be summarized in a matrix of all existing LCOs to facilitate NRC staff review of a conversion to the STS.

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

LCO 3.0.6 When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.15, "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

3.0 LCO Applicability

LCO 3.0.7 (continued)

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.

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. 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.

SR 3.0.4

Entry into a MODE or other specified condition in the Applicability of an LCO shall not be made unless the LCO's Surveillances have been met within their specified Frequency. This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

3.0 SR Applicability

SR 3.0.4 (continued)

SR 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.

-----------------------------------REVIEWER'S NOTE-----------------------------------
SR 3.0.4 has been revised so that changes in MODES or other specified conditions in the Applicability that are part of a shutdown of the unit shall not be prevented. In addition, SR 3.0.4 has been revised so that it is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4. The MODE change restrictions in SR 3.0.4 were previously applicable in all MODES. Before this version of SR 3.0.4 can be implemented on a plant-specific basis, the licensee must review the existing technical specifications to determine where specific restrictions on MODE changes or Required Actions should be included in individual LCOs to justify this change; such an evaluation should be summarized in a matrix of all existing LCOs to facilitate NRC staff review of a conversion to the STS.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM) (Analog)

LCO 3.1.1 ~~SHUTDOWN MARGIN (~~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 limits.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM) (Digital)

LCO 3.1.1 ~~SHUTDOWN MARGIN (~~SDM~~)~~ shall be within the limits ~~provided~~ 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 limits.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Reactivity Balance (Analog)

LCO 3.1.2 The core reactivity balance shall be within ± 1% Δk/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
	AND	
	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
SR 3.1.2.1	-----------------------------NOTES---------------------------- 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. --- Verify overall core reactivity balance is within ± 1.0% Δk/k of predicted values.	Prior to entering MODE 1 after fuel loading <u>AND</u> --------NOTE-------- Only required after 60 EFPD ------------------------ 31 EFPD

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Reactivity Balance (Digital)

LCO 3.1.2 The core reactivity balance shall be within ± 1% Δk/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. <u>AND</u> A.2 Establish appropriate operating restrictions and SRs.	7 days 7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	------------------------------NOTES---------------------------- 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. --- Verify overall core reactivity balance is within ± 1.0% Δk/k of predicted values.	Prior to entering MODE 1 after fuel loading AND --------NOTE-------- Only required after 60 EFPD ------------------------ 31 EFPD

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Moderator Temperature Coefficient (MTC) (Analog)

LCO 3.1.3 The Moderator Temperature Coefficient (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.	Prior to entering MODE 1 after each fuel loading

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.3.2	-------------------------------NOTE~~S~~---------------------------- ~~1. This Surveillance is not required to be performed prior to entry into MODE 1 or 2.~~ ~~2.~~ If the MTC is more negative than the COLR limit 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. --- Verify MTC is within the lower limit specified in the COLR.	Each fuel cycle within 7 effective full power days (EFPD) of reaching 40 EFPD core burnup AND Each fuel cycle within 7 EFPD of reaching 2/3 of expected core burnup

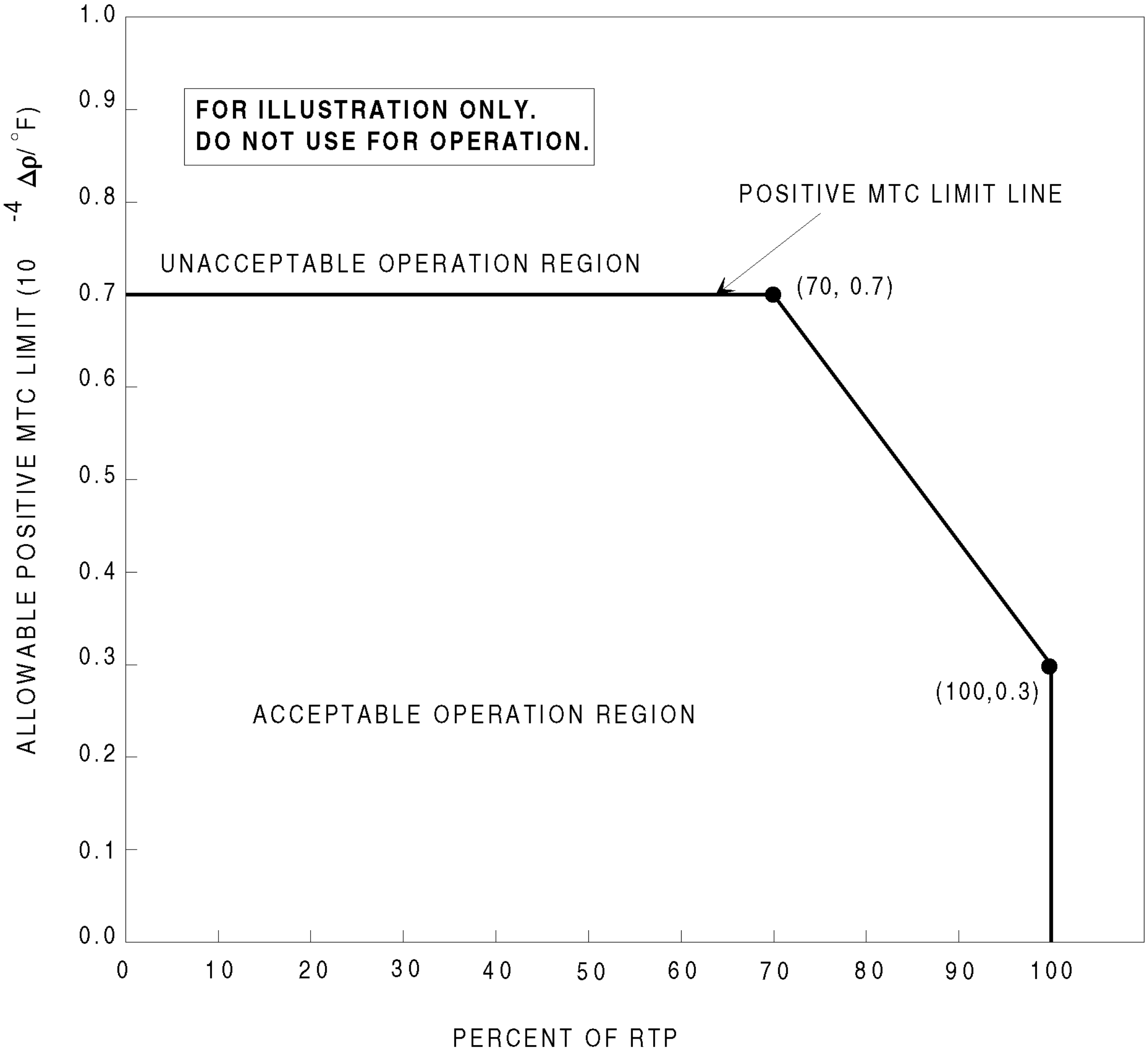

Figure 3.1.3-1 (page 1 of 1)
Allowable Positive MTC Limit

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Moderator Temperature Coefficient (MTC) (Digital)

LCO 3.1.3 The ~~Moderator Temperature Coefficient (~~MTC~~)~~ shall be maintained within the limits specified in the COLR, and a maximum positive limit as specified below:

a. [0.5 E-4 $\Delta k/k/°F$] when THERMAL POWER is $\leq$ 70% RTP and

b. [0.0 $\Delta k/k/°F$] 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
SR 3.1.3.1	Verify MTC is within the upper limit.	Prior to entering MODE 1 after each fuel loading

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.3.2	-------------------------------NOTES--------------------------- ~~1. This Surveillance is not required to be performed prior to entry into MODE 1 or 2.~~ ~~2.~~ If the MTC is more negative than the COLR limit 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. ---	
	Verify MTC is within the lower limit.	Each fuel cycle within 7 effective full power days (EFPD) of reaching 40 EFPD core burnup AND Each fuel cycle within 7 EFPD of reaching 2/3 of expected core burnup

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Control Element Assembly (CEA) Alignment (Analog)

LCO 3.1.4 All ~~Control Element Assemblies (~~CEAs~~)~~ shall be OPERABLE. ~~and~~

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	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. ------------------------------------- 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].	 6 hours
C. CEA deviation circuit inoperable.	C.1	Perform SR 3.1.4.1.	1 hour <u>AND</u> Every 4 hours thereafter
D. Required Action and associated Completion Time of Conditions A, B, or C not met. <u>OR</u> One or more CEAs ~~untrippable~~inoperable. <u>OR</u> Two or more CEAs misaligned by > [15 inches].	D.1	Be in MODE 3.	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.	Within 1 hour ~~Following~~ following any CEA movement of > [7 inches] AND 12 hours
SR 3.1.4.2	Verify the CEA motion inhibit is OPERABLE.	92 days
SR 3.1.4.3	Verify the CEA deviation circuit is OPERABLE.	~~31~~ 92 days
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
SR 3.1.4.5	Perform a CHANNEL FUNCTIONAL TEST of the reed switch position transmitter channel.	18 months
SR 3.1.4.6	Verify each CEA drop time is ≤ [3.1] seconds.	Prior to reactor criticality, after each removal of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS

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

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
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
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
SR 3.1.4.4	Perform a CHANNEL FUNCTIONAL TEST of each reed switch position transmitter channel.	[18] months
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

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

LCO 3.1.5 All shutdown ~~Control Element Assemblies (~~CEAs~~)~~ shall be withdrawn to ≥ [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

~~---NOTE---~~
~~This LCO is not applicable while performing SR 3.1.4.5.~~
~~--~~

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 ≥ [129] inches.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

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

LCO 3.1.5 All shutdown ~~Control Element Assemblies (~~CEAs~~)~~ shall be withdrawn to ≥ [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

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

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 ≥ [145] inches.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

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 ~~Control Element Assembly (~~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

~~------------------------------NOTE------------------------------~~
~~This LCO is not applicable while performing SR 3.1.4.5 [or during reactor power cutback operation].~~
~~--~~

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>	
	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
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.	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	15 minutes

CONDITION	REQUIRED ACTION	COMPLETION TIME
	$\leq$ 5% RTP per hour.	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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.	C.1 Restore regulating CEA groups to within limits.	2 hours
D. PDIL alarm circuit inoperable.	D.1 Perform SR 3.1.6.1.	1 hour <u>AND</u> Once per 4 hours thereafter
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	-------------------------------NOTE------------------------------ Not required to be performed until 12 hours after entry into MODE 2. --- Verify each regulating CEA group position is within its insertion limits.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.6.2	Verify the accumulated times during which the regulating CEA groups are inserted beyond the steady state insertion limits but within the transient insertion limits.	24 hours
SR 3.1.6.3	Verify PDIL alarm circuit is OPERABLE.	31 days

3.1 REACTIVITY CONTROL SYSTEMS

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 ~~and SHUTDOWN MARGIN (SDM)~~, 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
A. Any CEA not fully inserted and less than the above shutdown reactivity equivalent available for trip insertion. OR All CEAs inserted and the reactor subcritical by less than the above shutdown reactivity equivalent.	A.1 Initiate boration to restore required shutdown reactivity.	15 minutes

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
SR 3.1.7.2	-----------------------------NOTE----------------------------- Not required to be performed during initial power escalation following a refueling outage if SR 3.1.~~5.7~~4.6 has been met. -- Verify that each CEA not fully inserted is capable of full insertion when tripped from at least the 50% withdrawn position.	Once within [7 days] prior to reducing SDM to less than the limits of LCO 3.1.1

3.1 REACTIVITY CONTROL SYSTEMS

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

LCO 3.1.7 The part length ~~Control Element Assembly (~~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

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

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. <u>OR</u> A.2 Reduce THERMAL POWER to less than or equal to that fraction of RTP specified in the COLR.	2 hours 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 ≤ 20% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify part length CEA group position.	12 hours

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^T_{XY})),"
LCO 3.2.3, "Total Integrated Radial Peaking Factor (F^T_r)," 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

3.1 REACTIVITY CONTROL SYSTEMS

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)~~-T_{avg} > 200□F~~," ~~and~~
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 ~~and SDM~~, 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
A. Any full length CEA not fully inserted and less than the required shutdown reactivity available for trip insertion. OR All full length CEAs inserted and the reactor subcritical by less than the above required shutdown reactivity equivalent.	A.1 Initiate boration to restore required shutdown reactivity.	15 minutes

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
SR 3.1.8.2	-------------------------------NOTE------------------------------ Not required to be performed during initial power escalation following a refueling outage if SR 3.1.4.5 has been met. --- Verify each full length CEA not fully inserted is capable of full insertion when tripped from at least the 50% withdrawn position.	Once within [7 days] prior to reducing SDM to less than the limits of LCO 3.1.1

3.1 REACTIVITY CONTROL SYSTEMS

3.1.9 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

3.2 POWER DISTRIBUTION LIMITS

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
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. <u>OR</u> 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.	A.1 Restore LHR to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

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

	SURVEILLANCE	FREQUENCY
SR 3.2.1.1	------------------------------NOTE------------------------------ Only required to be met when the Excore Detector Monitoring System is being used to determine LHR. --- Verify ASI alarm setpoints are within the limits specified in the COLR.	31 days
SR 3.2.1.2	-----------------------------NOTES----------------------------- 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. --- 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.	31 days
SR 3.2.1.3	-----------------------------NOTES----------------------------- 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. --- Verify incore detector local power density alarm setpoints are less than or equal to the limits specified in the COLR.	31 days

3.2 POWER DISTRIBUTION LIMITS

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.	Once per 15 minutes
	AND		
	B.2.1	With an adverse trend, restore LHR to within limit.	1 hour
		OR	
	B.2.2	With no adverse trend, restore LHR to within limits.	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 3.2.1.1	-------------------------------NOTE------------------------------ Only required to be met when COLSS is out of service. With COLSS in service, LHR is continuously monitored. --- Verify LHR, as indicated on each OPERABLE local power density channel, is within its limit.	2 hours
SR 3.2.1.2	Verify the COLSS margin alarm actuates at a THERMAL POWER equal to or less than the core power operating limit based on LHR.	31 days

3.2 POWER DISTRIBUTION LIMITS

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
A. ------------NOTE------------ Required Actions shall be completed if this Condition is entered. --------------------------------- F_{xy}^{T} not within limits.	A.1 Reduce THERMAL POWER to bring the combination of THERMAL POWER and F_{xy}^{T} to within the limits specified in the COLR.	6 hours
	AND	
	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.	6 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	-------------------------------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^T_{xy} 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. --- Verify the value of F^T_{xy}	Once prior to operation above 70% RTP after each fuel loading <u>AND</u> Each 31 days of accumulated operation in MODE 1
SR 3.2.2.2	Verify the value of F_{xy}.	In accordance with the Frequency requirements of SR 3.2.2.1
SR 3.2.2.3	Verify the value of T_q.	In accordance with the Frequency requirements of SR 3.2.2.1

3.2 POWER DISTRIBUTION LIMITS

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 $\geq F_{xy}^{M} / F_{xy}^{C}$.	6 hours
	AND	
	A.1.2 Maintain a margin to the COLSS operating limits of $[(F_{xy}^{M} / F_{xy}^{C})-1.0] \times 100\%$	6 hours
	OR	
	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}.	6 hours
	OR	
	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.	Once after each fuel loading with THERMAL POWER > 40% RTP but prior to operations above 70% RTP <u>AND</u> 31 EFPD thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.3 Total Integrated Radial Peaking Factor (F_r^T) (Analog)

LCO 3.2.3 The calculated value of F_r^T shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ------------NOTE------------ Required Actions shall be completed if this Condition is entered. --------------------------------- F_r^T not within limit.	A.1 Reduce THERMAL POWER to bring the combination of THERMAL POWER and F_r^T to within limits specified in the COLR. <u>AND</u> A.2 Withdraw the control element assemblies (CEAs) to or beyond the long term steady state insertion limits of LCO 3.1.6, "Regulating Control Element Assembly (CEA) Insertion Limits," as specified in the COLR. <u>AND</u> A.3 Establish a revised upper THERMAL POWER limit as specified in the COLR.	6 hours 6 hours 6 hours
B. Required Actions and associated Completion Times not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	-------------------------------NOTE------------------------------ 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. --- Verify the value of F_r^T.	Prior to operation > 70% RTP after each fuel loading <u>AND</u> Each 31 days of accumulated operation in MODE 1
SR 3.2.3.2	Verify the value of F_r.	In accordance with the Frequency requirements of SR 3.2.3.1
SR 3.2.3.3	Verify the value of T_q.	In accordance with the Frequency requirements of SR 3.2.3.1

3.2 POWER DISTRIBUTION LIMITS

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 $\leq$ [0.10].	A.1 Restore measured T_q. <u>OR</u> A.2 Adjust the T_q allowance in the CPCs to greater than or equal to the measured value.	2 hours 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 $\leq$ [0.10]. --- B.1 Reduce THERMAL POWER to $\leq$ 50% RTP. <u>AND</u> B.2 Reduce Linear Power Level - High trip setpoints to $\leq$ 55% RTP. <u>AND</u>	 4 hours 16 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.3	Restore the measured T_q to less than the T_q allowance used in the CPCs.	Prior to increasing THERMAL POWER -----------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~~s~~ for 12 hours, or until verified at ≥ 95% RTP -----------------------------
C. Required Actions and associated Completion Times not met.	C.1	Reduce THERMAL POWER to ≤ 20%.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	-----------------------------NOTE~~S~~----------------------------- Only required to be met when COLSS is out of service. With COLSS in service, this parameter is continuously monitored. -- Calculate T_q and verify it is within the limit.	12 hours
SR 3.2.3.2	Verify COLSS azimuthal tilt alarm is actuated at a T_q value less than the T_q value used in the CPCs.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.2.3.3	Independently confirm the validity of the COLSS calculated T_q by use of the incore detectors.	31 EFPD

3.2 POWER DISTRIBUTION LIMITS

3.2.4 AZIMUTHAL POWER TILT (T_q) (Analog)

LCO 3.2.4 T_q shall be $\leq$ [0.03].

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Indicated T_q > [0.03] and $\leq$ 0.10.	A.1 Restore T_q to $\leq$ [0.03]. <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 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 $\leq$ 50% RTP.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Indicated $T_q > 0.10$.	-------------------NOTE--------------- All subsequent Required Actions must be completed if power reduction commences prior to restoring $T_q \leq 0.10$. ---	
	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.	1 hour
	AND	
	C.2 Reduce THERMAL POWER to < 50% RTP.	2 hours
	AND	
	C.3 Restore T_q to $\leq$ [0.03].	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 $\leq$ [0.03] at least once per hour~~s~~ for 12 hours, or until verified at 95% RTP~~.~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	Verify T_q is within limits.	12 hours

3.2 POWER DISTRIBUTION LIMITS

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 <u>AND</u>	**[** Determine trend in DNBR.	Once per 15 minutes **]**

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.1 With an adverse trend, restore DNBR to within limit. OR 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 ≤ 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
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

3.2 POWER DISTRIBUTION LIMITS

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 ≤ 20% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.5.1	Verify ASI is within limits specified in the COLR.	12 hours

3.2 POWER DISTRIBUTION LIMITS

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 ≤ 20% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.5.1	Verify ASI is within limits.	12 hours

3.3 INSTRUMENTATION

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
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).	A.1 Place affected trip unit in bypass or trip. <u>AND</u> A.2.1 Restore channel to OPERABLE status. <u>OR</u> A.2.2 [Place affected trip unit in trip.	1 hour [48] hours 48 hours]
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).	-------------------NOTE-------------- LCO 3.0.4 is not applicable. -- B.1 Place one trip unit in bypass and place the other trip unit in trip. <u>AND</u> B.2 Restore one trip unit to OPERABLE status.	 1 hour [48] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with one or more power range excore channels not calibrated with the incore detectors.	C.1 Perform SR 3.3.1.3. OR C.2 Restrict THERMAL POWER to ≤ 90% RTP.	24 hours 24 hours
D. One or more Functions with one automatic bypass removal channel inoperable.	D.1 Disable bypass channel. OR D.2.1 Place affected trip units in bypass or trip. AND D.2.2.1 Restore bypass removal channel and affected trip units to OPERABLE status. OR D.2.2.2 [Place affected trip units in trip.	1 hour 1 hour [48] hours 48 hours]
E. One or more Functions with two automatic bypass removal channels inoperable.	-------------------NOTE------------- LCO 3.0.4 is not applicable. --- E.1 Disable bypass channels. OR	 1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	E.2.1	[Place one affected trip unit in bypass and place the other in trip for each affected trip Function.	1 hour
	<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.	[48] hours]
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
SR 3.3.1.1	Perform a CHANNEL CHECK of each RPS instrument channel except Loss of Load.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2	-----------------------------NOTES----------------------------- 1. Not required to be performed until 12 hours after THERMAL POWER is ≥ [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. --- 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 ≥ [1.5]%.	24 hours
SR 3.3.1.3	------------------------------NOTE------------------------------ Not required to be performed until 12 hours after THERMAL POWER is ≥ [20]% RTP. --- Calibrate the power range excore channels using the incore detectors.	31 days
SR 3.3.1.4	Perform a CHANNEL FUNCTIONAL TEST of each RPS channel except Loss of Load and Power Rate of Change.	[92] days
SR 3.3.1.5	------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform a CHANNEL CALIBRATION on excore power range channels.	92 days
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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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	------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform a CHANNEL CALIBRATION of each RPS instrument channel, including bypass removal functions.	[18] months
SR 3.3.1.9	------------------------------NOTE------------------------------ Neutron detectors are excluded ~~from RPS RESPONSE TIME testing~~. -- Verify RPS RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

Table 3.3.1-1 (page 1 of 2)
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 SR 3.3.1.5 SR 3.3.1.8 SR 3.3.1.9	≤ [10]% RTP above current THERMAL POWER but not < [30]% RTP nor > [107]% RTP
2. Power Rate of Change - High[(a)]	1, 2	SR 3.3.1.1 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8	≤ [2.6] dpm
3. Reactor Coolant Flow - Low[(b)]	1, 2	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.9	≥ [95]%
4. Pressurizer Pressure - High	1, 2	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.8 SR 3.3.1.9	≤ [2400] psia
5. Containment Pressure - High	1, 2	[SR 3.3.1.1] SR 3.3.1.4 SR 3.3.1.8 SR 3.3.1.9	≤ [4.0] psig
6. Steam Generator Pressure - Low[(c)]	1, 2	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.9	≥ [685] psia

(a) 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.

(b) 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.

(c) Trip may be bypassed when steam generator pressure is < [785] psig. Bypass shall be automatically removed when steam generator pressure is ≥ [785] psig.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7a. Steam Generator A Level - Low	1, 2	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.8 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 SR 3.3.1.8 SR 3.3.1.9	≥ [24.7]%
[8. Axial Power Distribution - High	1[(d) (e)]	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 SR 3.3.1.8 SR 3.3.1.9	Figure 3.3.1-3]
9a. Thermal Margin/Low Pressure (TM/LP)[(b)]	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 [SR 3.3.1.8] SR 3.3.1.9	Figures 3.3.1-1 and 3.3.1-2
[9b. Steam Generator Pressure Difference[(b)]	1, 2	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.8 SR 3.3.1.9	≤ [135] psid]
10. Loss of Load (turbine stop valve control oil pressure)	1[(d) (e)]	SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8	≥ [800] psig

(b) 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.

(d) 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.

(e) Trip is only applicable in MODE 1 ≥ 15% RTP.

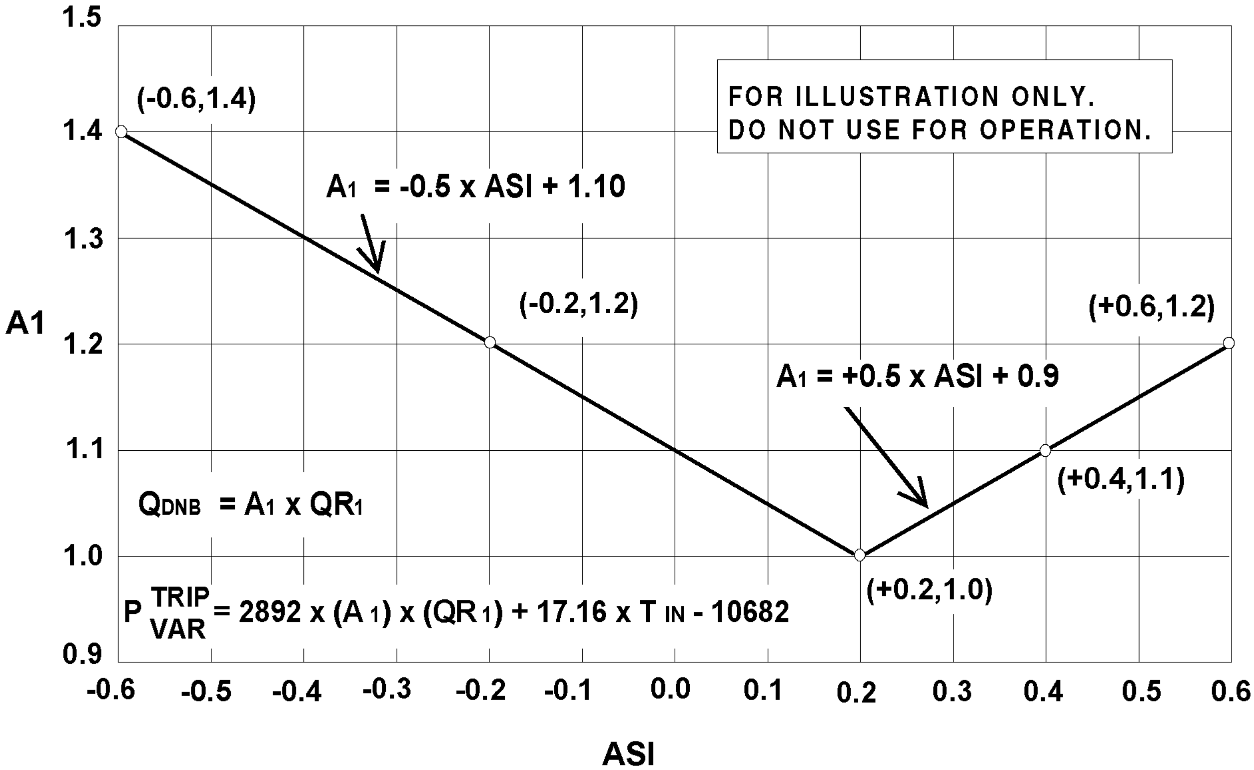

Figure 3.3.1-1 (page 1 of 1)
Thermal Margin/Low Pressure Trip Setpoint: ASI vs A_1

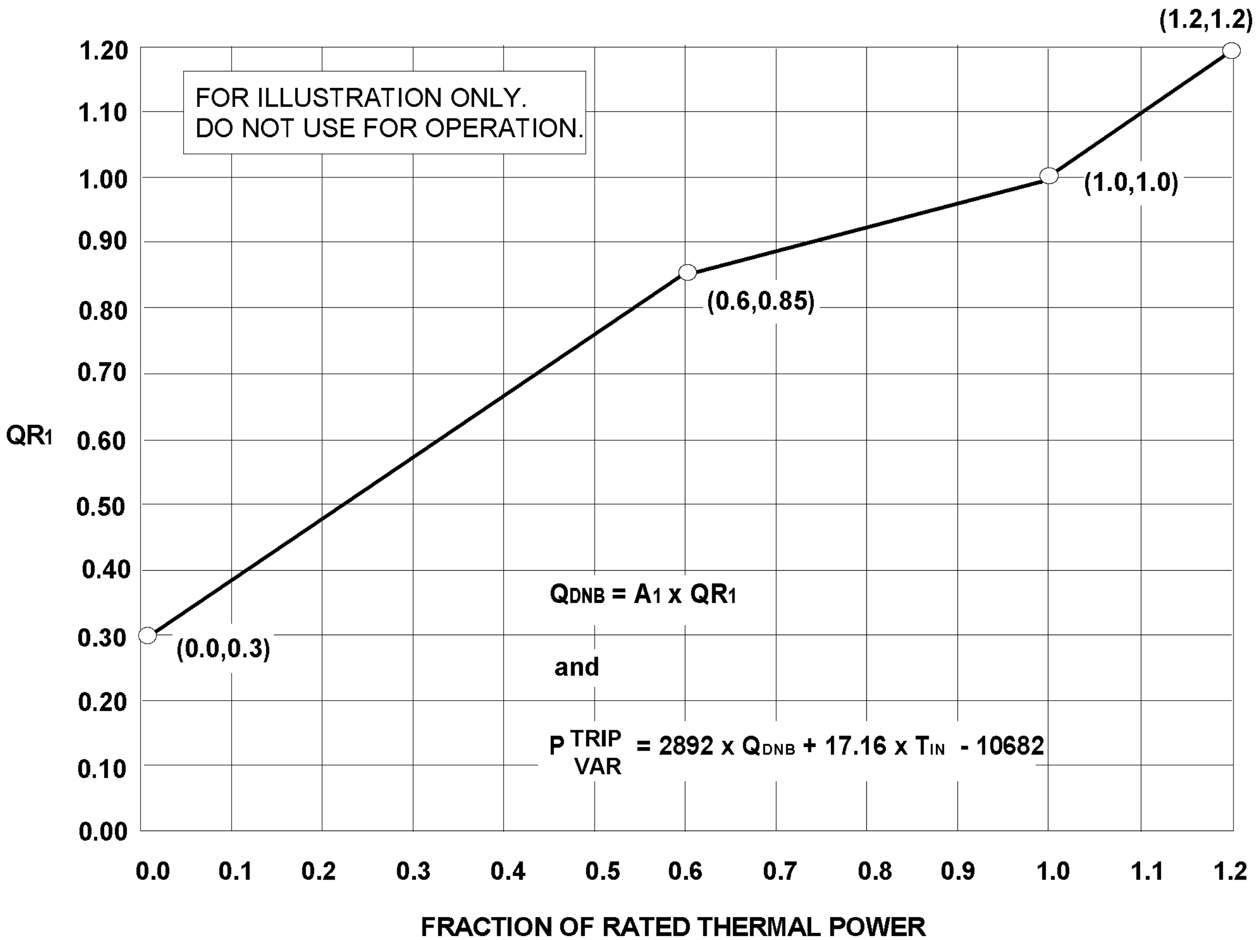

Figure 3.3.1-2 (page 1 of 1)
Thermal Margin/Low Pressure Trip Setpoint: Fraction of RTP vs QR_1

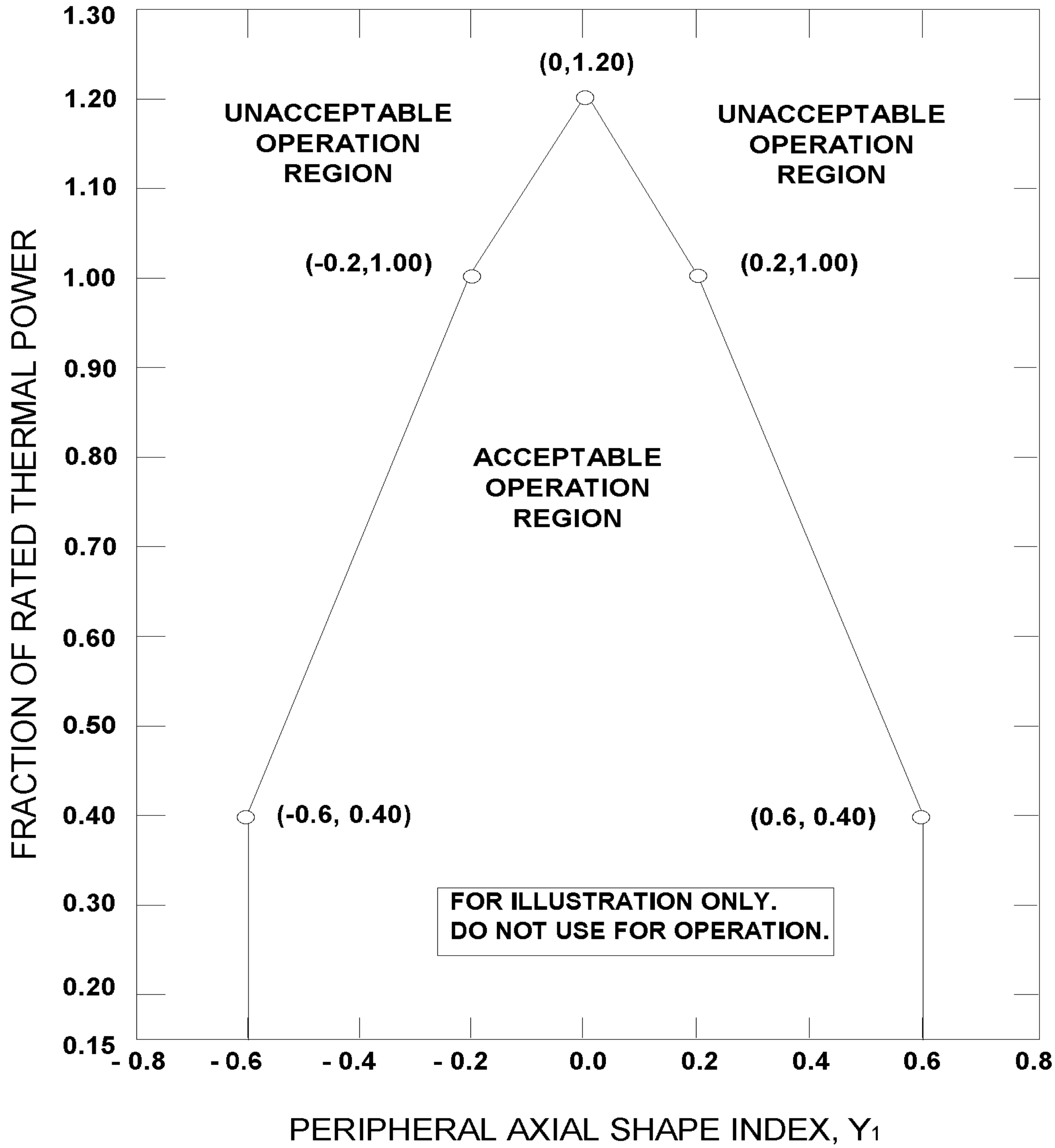

Figure 3.3.1-3 (page 1 of 1)
Peripheral Axial Shape Index, Y_1 vs Fraction of RTP

3.3 INSTRUMENTATION

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.	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 automatic RPS trip channels inoperable.	B.1	---------------NOTE-------------- LCO 3.0.4 is not applicable. -------------------------------------	
		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.	1 hour
	<u>OR</u>		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.1 Place affected automatic trip channel in bypass or trip. AND C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
D. One or more Functions with two automatic bypass removal channels inoperable.	--------------------NOTE------------- LCO 3.0.4 is not applicable. --- D.1 Disable bypass channels. OR D.2 Place one affected automatic trip channel in bypass and place the other in trip.	 1 hour 1 hour
E. One or more core protection calculator (CPC) channels with a cabinet high temperature alarm.	E.1 Perform CHANNEL FUNCTIONAL TEST on affected CPC.	12 hours
F. One or more CPC channels with three or more autorestarts during a 12 hour period.	F.1 Perform CHANNEL FUNCTIONAL TEST on affected CPC.	24 hours
G. Required Action and associated Completion Time not met.	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
SR 3.3.1.1	Perform a CHANNEL CHECK of each RPS instrument channel except Loss of Load.	12 hours
SR 3.3.1.2	-------------------------------NOTE------------------------------ Not required to be performed until 12 hours after THERMAL POWER ≥ 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
SR 3.3.1.3	Check the CPC auto restart count.	12 hours
SR 3.3.1.4	-----------------------------NOTES---------------------------- 1. Not required to be performed until 12 hours after THERMAL POWER ≥ 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. --- 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 ≥ [2]%.	24 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.5	-------------------------------NOTE------------------------------ Not required to be performed until 12 hours after THERMAL POWER ≥ 70% RTP. --- Verify total RCS flow rate indicated by each CPC is less than or equal to the RCS flow determined by calorimetric calculations.	31 days
SR 3.3.1.6	-------------------------------NOTE------------------------------ Not required to be performed until 12 hours after THERMAL POWER ≥ 15% RTP. --- 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.	31 days
SR 3.3.1.7	-----------------------------NOTES---------------------------- 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. --- Perform CHANNEL FUNCTIONAL TEST on each channel except Loss of Load and power range neutron flux.	92 days

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.8	------------------------------NOTE------------------------------ Neutron detectors are excluded from the CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION of the power range neutron flux channels.	92 days
SR 3.3.1.9	------------------------------NOTE------------------------------ [Not required to be performed until 2 hours after THERMAL POWER ≥ 55% RTP. -- Perform CHANNEL FUNCTIONAL TEST for Loss of Load Function.	92 days]
SR 3.3.1.10	------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION on each channel, including bypass removal functions.	[18] months
SR 3.3.1.11	Perform a CHANNEL FUNCTIONAL TEST on each CPC channel.	[18] months
SR 3.3.1.12	Using the incore detectors, verify the shape annealing matrix elements to be used by the CPCs.	Once after each refueling prior to exceeding 70% RTP
SR 3.3.1.13	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.	Once within 92 days prior to each reactor startup

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.14	-------------------------------NOTE------------------------------ Neutron detectors are excluded. --- Verify RPS RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

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. 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 SR 3.3.1.8 SR 3.3.1.10 SR 3.3.1.14	≤ [111.3]% RTP
2. Logarithmic Power Level - High[(a)]	2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 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 SR 3.3.1.10 SR 3.3.1.14	≤ [2389] psia
4. Pressurizer Pressure - Low[(c)]	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 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 SR 3.3.1.10 SR 3.3.1.14	≤ [3.14] psig
6. Steam Generator #1 Pressure - Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.14	≥ [711] psia

(a) 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."

(b) Not used.

(c) 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 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Steam Generator #2 Pressure - Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 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 SR 3.3.1.10 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 SR 3.3.1.10 SR 3.3.1.14	≥ [24.23]%
10. Steam Generator #1 Level - High	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.14	≤ [90.74]%
11. Steam Generator #2 Level - High	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.14	≤ [90.74]%
[12. Reactor Coolant Flow, Steam Generator #1 - Low(d)	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 [SR 3.3.1.13] SR 3.3.1.14	Ramp: ≤ [0.231] psid/sec. Floor: ≥ [12.1] psid Step: ≤ [7.231] psid **]**
[13. Reactor Coolant Flow, Steam Generator #2 - Low(d)	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 [SR 3.3.1.13] SR 3.3.1.14	Ramp: ≤ [0.231] psid/sec. Floor: ≥ [12.1] psid Step: ≤ [7.231] psid **]**

(d) 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 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
[14. Loss of Load (turbine stop valve control oil pressure)(e)	1	SR 3.3.1.9 SR 3.3.1.10 [SR 3.3.1.13]	≥ [100] psig **]**
15. Local Power Density - High(d)	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 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13 SR 3.3.1.14	≤ [21.0] kW/ft
16. Departure From Nucleate Boiling Ratio (DNBR) - Low(d)	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 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13 SR 3.3.1.14	≥ [1.31]

(d) 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.

(e) 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.

3.3 INSTRUMENTATION

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 $\geq$ [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. <u>AND</u> A.2.1 Restore channel to OPERABLE status. <u>OR</u> A.2.2 **[** Place affected trip unit in trip.	1 hour [48] hours 48 hours **]**

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two Power Rate of Change - High trip units or associated instrument channel inoperable.	------------------NOTE------------- LCO 3.0.4 is not applicable. -- B.1 Place one trip unit in bypass and place the other trip unit in trip. AND B.2 [Restore one trip unit to OPERABLE status.	1 hour 48 hours]
C. One automatic bypass removal channel inoperable.	C.1 Disable bypass channel. OR C.2.1 Place affected trip unit in bypass or trip. AND C.2.2.1 Restore bypass removal channel and affected trip unit to OPERABLE status. OR C.2.2.2 [Place affected trip units in trip.	1 hour 1 hour [48] hours 48 hours]
D. Two automatic bypass removal channels inoperable.	------------------NOTE------------- LCO 3.0.4 is not applicable. -- D.1 Disable bypass channels. OR	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.2.1 Place one affected trip unit in bypass and place the other in trip. <u>AND</u> D.2.2 Restore one bypass channel and the associated trip unit to OPERABLE status.	1 hour [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
SR 3.3.2.2	Perform a CHANNEL FUNCTIONAL TEST on the Power Rate of Change trip function.	92 days
SR 3.3.2.3	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.	92 days
SR 3.3.2.4	-------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform a CHANNEL CALIBRATION, including bypass removal functions with Allowable Value $\leq$ [2.6] dpm.	[18] months

3.3 INSTRUMENTATION

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 ≤ [1E-4]%. ~~Trip may be manually bypassed during physics testing pursuant to LCO 3.4.17, "RCS Loops - Test Exceptions."~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RPS logarithmic power level trip channel inoperable.	A.1 Place channel in bypass or trip.	1 hour
	AND	
	A.2 Restore channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry
B. Two RPS logarithmic power level trip channels inoperable.	B.1 --------------NOTE--------------- LCO 3.0.4 is not applicable. ------------------------------------- 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.	1 hour
	OR	
	C.2.1 Place affected automatic trip channel in bypass or trip.	1 hour
	AND	
	C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry
D. Two automatic bypass removal channels inoperable.	--------------------NOTE-------------- LCO 3.0.4 is not applicable. ---	
	D.1 Disable bypass channels.	1 hour
	OR	
	D.2 Place one affected automatic trip channel in bypass and place the other in trip.	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

SURVEILLANCE	FREQUENCY

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.2	Perform a CHANNEL FUNCTIONAL TEST on each logarithmic power channel.	92 days
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	-------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform a CHANNEL CALIBRATION on each logarithmic power channel, including bypass removal function with Allowable Value for trip channels $\leq$ [.93]%.	[18] months
SR 3.3.2.5	Verify RPS RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

3.3 INSTRUMENTATION

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
A. One Matrix Logic channel inoperable. <u>OR</u> Three Matrix Logic channels inoperable due to a common power source failure de-energizing three matrix power supplies.	A.1	Restore channel(s) to OPERABLE status.	48 hours
B. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1	Open the affected RTCBs.	1 hour
C. One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1	Open the affected RTCBs.	48 hours

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. OR 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. AND 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
SR 3.3.3.2	Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel.	[92] days
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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 **]**

3.3 INSTRUMENTATION

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. AND 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. OR 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]. AND	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	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].	4 hours
	<u>AND</u>		
	B.3	Verify the "RSPT/CEAC Inoperable" addressable constant in each core protection calculator (CPC) is set to indicate that both CEACs are inoperable.	4 hours
	<u>AND</u>		
	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.	4 hours
	<u>AND</u>		
	B.5	Perform SR 3.1.4.1.	Once per 4 hours
C. Receipt of a CPC channel B or C cabinet high temperature alarm.	C.1	Perform CHANNEL FUNCTIONAL TEST on affected CEAC(s).	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or two CEACs with three or more auto restarts during a 12 hour~~s~~ 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
SR 3.3.3.2	Check the CEAC auto restart count.	12 hours
SR 3.3.3.3	Perform a CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.3.4	Perform a CHANNEL CALIBRATION.	[18] months
SR 3.3.3.5	Perform a CHANNEL FUNCTIONAL TEST.	[18] months
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

3.3 INSTRUMENTATION

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.	1 hour
	<u>AND</u>	
	B.2.1 Restore channel to OPERABLE status.	[48] hours
	<u>OR</u>	
	B.2.2 **[** Place affected trip unit in trip.	48 hours **]**

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with two ESFAS trip units or associated instrument channels (except CSAS) inoperable.	-------------------NOTE-------------- LCO 3.0.4 is not applicable. ---	
	C.1 Place one trip unit in bypass and place the other trip unit in trip.	1 hour
	AND	
	C.2 Restore one trip unit to OPERABLE status.	[48] hours
D. One or more Functions with one automatic bypass removal channel inoperable.	D.1 Disable bypass channel.	1 hour
	OR	
	D.2.1 Place affected trip units in bypass or trip.	1 hour
	AND	
	D.2.2.1 Restore bypass removal channel and affected trip units to OPERABLE status.	[48] hours
	OR	
	D.2.2.2 **[** Place affected trip units in trip.	48 hours **]**
E. One or more Functions with two automatic bypass removal channels inoperable.	-------------------NOTE-------------- LCO 3.0.4 is not applicable. ---	
	E.1 Disable bypass channels.	1 hour
	OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	E.2.1 Place one affected trip unit in bypass and place the other in trip for each affected ESFAS Function. AND E.2.2 **[** Restore one bypass channel and the associated trip unit to OPERABLE status for each affected trip Function.	1 hour 48 hours **]**
F. Required Action and associated Completion Time not met.	F.1 Be in MODE 3. AND 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
SR 3.3.4.2	Perform a CHANNEL FUNCTIONAL TEST of each ESFAS instrument channel.	[92] days
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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.4	Perform a CHANNEL CALIBRATION of each ESFAS instrument channel, including bypass removal functions.	[18] months
SR 3.3.4.5	Verify ESF RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS

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 SR 3.3.4.4 SR 3.3.4.5	≤ [19.0] psia
b. Pressurizer Pressure - Low[(a)]	1,2,3	SR 3.3.4.1 SR 3.3.4.2 SR 3.3.4.3 SR 3.3.4.4 SR 3.3.4.5	≥ [1687] psia
2. Containment Spray Actuation Signal[(b)]			
a. Containment Pressure - High	1,2,3	SR 3.3.4.1 SR 3.3.4.2 SR 3.3.4.4 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 SR 3.3.4.4 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 SR 3.3.4.4 SR 3.3.4.5	≤ [2x Background] **]**

(a) 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.

[(b) 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(c)	1,2(d),3(d)	SR 3.3.4.1 SR 3.3.4.2 SR 3.3.4.3 SR 3.3.4.4 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 SR 3.3.4.4 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 SR 3.3.4.4 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 SR 3.3.4.4 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 SR 3.3.4.4 SR 3.3.4.5	≤ [48.3] psid

(c) 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.

(d) 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

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, B, or D not met. <u>OR</u> 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.	E.1 Be in MODE 3. <u>AND</u> E.2 Open all RTCBs.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform a CHANNEL FUNCTIONAL TEST on each RTCB channel.	[31] days
SR 3.3.4.2	Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel.	[92] days
SR 3.3.4.3	Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB.	[18] months
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

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
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
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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more Functions with two Manual Trip or Actuation Logic channel inoperable except AFAS. OR Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	-----------------------------NOTES---------------------------- 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. --- Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.	[92] days
SR 3.3.5.2	Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Trip channel.	[18] months

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

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.	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 automatic ESFAS trip channels inoperable.	B.1 ---------------NOTE-------------- LCO 3.0.4 is not applicable. ------------------------------------- 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.	1 hour
	<u>OR</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.1 Place affected automatic trip channel in bypass or trip. AND C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
D. One or more Functions with two automatic bypass removal channels inoperable.	--------------------NOTE-------------- LCO 3.0.4 is not applicable. --- D.1 Disable bypass channels. OR 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 Be in MODE 3. AND E.2 Be in MODE 4.	6 hours [12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform a CHANNEL CHECK of each ESFAS channel.	12 hours
SR 3.3.5.2	Perform a CHANNEL FUNCTIONAL TEST of each ESFAS channel.	92 days
SR 3.3.5.3	Perform a CHANNEL CALIBRATION of each ESFAS channel, including bypass removal functions.	[18] months
SR 3.3.5.4	Verify ESF RESPONSE TIME is within limits.	[18] months on a STAGGERED TEST BASIS
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 3.3.5-1 (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 3.3.5-1 (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

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.	1 hour
	AND	
	A.2.1 Restore channel to OPERABLE status.	[48] hours
	OR	
	A.2.2 [Place the channel in trip.	48 hours]
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.	1 hour
	OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.1 --------------NOTE-------------- LCO 3.0.4 is not applicable. ------------------------------------- Place one channel in bypass and the other channel in trip.	1 hour
	AND	
	B.2.2 Restore one channel to OPERABLE status.	[48] hours
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 3.3.6.1	**[** Perform CHANNEL CHECK.	12 hours **]**
SR 3.3.6.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.3	Perform CHANNEL CALIBRATION with setpoint Allowable Values as follows: a. Degraded Voltage Function ≥ [3180] V and ≤ [3220] V Time delay: ≥ [ ] seconds and ≤ [ ] seconds at [ ] V and b. Loss of Voltage Function ≥ [3180] V and ≤ [3220] V Time delay: ≥ [ ] seconds and ≤ [ ] seconds at [ ] V.	[18] months

3.3 INSTRUMENTATION

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
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.	A.1 Restore channel to OPERABLE status.	48 hours
B. One or more Functions with one Manual Trip or Initiation Logic channel inoperable.	B.1 Restore channel to OPERABLE status.	48 hours

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. AND C.2 Restore channels to OPERABLE status.	Immediately 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 inoperable channel to OPERABLE status.	 48 hours
E. Two Actuation Logic channels inoperable. OR Required Action and associated Completion Time of Conditions, for Containment Spray Actuation Signal, Main Steam Isolation Signal, or Emergency Feedwater Actuation Signal not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	6 hours [12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two Actuation Logic channels~~,~~ inoperable. __OR__ Required Action and associated Completion Time of Conditions, for~~,~~ Safety Injection Actuation Signal, Containment Isolation Actuation Signal, Recirculation Actuation Signal, or Containment Cooling Actuation Signal not met.	F.1 Be in MODE 3. __AND__ F.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	-------------------------------NOTE------------------------------ Testing of Actuation Logic shall include the verification of the proper operation of each initiation relay. --- Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.	[92] days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.2	-------------------------------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. --- 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.	[184] days
SR 3.3.6.3	Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Trip channel.	[18] months

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

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
	OR	
	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
OR	OR	
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
OR		
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
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
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
SR 3.3.7.4	Perform a CHANNEL CALIBRATION on each containment radiation monitor channel.	[18] months
SR 3.3.7.5	Perform a CHANNEL FUNCTIONAL TEST on each CPIS Manual Trip channel.	[18] months
SR 3.3.7.6	Verify CPIS response time of each containment radiation channel is within limits.	[18] months on a STAGGERED TEST BASIS

3.3 INSTRUMENTATION

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 <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 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	---------------NOTE-------------- LCO 3.0.4 is not applicable. ------------------------------------- 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]
SR 3.3.7.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.7.3	Perform CHANNEL CALIBRATION with setpoint Allowable Values as follows: a. Degraded Voltage Function ≥ [3180] V and ≤ [3220] V Time delay: ≥ [ ] seconds and ≤ [ ] seconds at [ ] V and b. Loss of Voltage Function ≥ [3180] V and ≤ [3220] V Time delay: ≥ [ ] seconds and ≤ [ ] seconds at [ ] V.	[18] months

3.3 INSTRUMENTATION

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
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.	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.	1 hour
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	Be in MODE 5.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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.	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.	Immediately
	OR	
	C.2.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	AND	
	C.2.2 --------------NOTE-------------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. -------------------------------------	
	~~C.2.2~~ Suspend positive reactivity additions.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform a CHANNEL CHECK on the required control room radiation monitor channel.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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
SR 3.3.8.3	-----------------------------NOTES----------------------------- 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. --- Perform a CHANNEL FUNCTIONAL TEST on the required CRIS Actuation Logic channel.	 [31] days
SR 3.3.8.4	Perform a CHANNEL CALIBRATION on the required CRIS radiation monitor channel.	[18] months
SR 3.3.8.5	Perform a CHANNEL FUNCTIONAL TEST on the required CRIS Manual Trip channel.	[18] months
SR 3.3.8.6	**[** Verify response time of required CRIS channel is within limits.	[18] months **]**

3.3 INSTRUMENTATION

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. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 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
	OR	
	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
SR 3.3.8.2	Perform a CHANNEL CHECK on required containment particulate and iodine radiation monitor channel.	7 days
SR 3.3.8.3	-------------------------------NOTE------------------------------ Only required to be met in MODES 1, 2, 3, and 4 ~~only~~. -- Perform a CHANNEL FUNCTIONAL TEST on each required containment radiation monitor channel. Verify setpoint [Allowable Value] is in accordance with the following: Containment Gaseous Monitor: ≤ [2X background] Containment Particulate Monitor: ≤ [2X background] Containment Area Gamma Monitor: ≤ [325 mR/hr]	92 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.4	-------------------------------NOTE------------------------------ Only required to be met during CORE ALTERATIONS or during movement of irradiated fuel assemblies within containment. --- Perform a CHANNEL FUNCTIONAL TEST on required containment radiation monitor channel. Verify setpoint [Allowable Value] is in accordance with the following: Containment Gaseous Monitor: ≤ [2X background] Containment Particulate Monitor: ≤ [2X background] Containment Iodine Monitor: ≤ [2X background] Containment Area Gamma Monitor: ≤ [2X background]	92 days
SR 3.3.8.5	-------------------------------NOTE------------------------------ Surveillance of Actuation Logic shall include the actuation of each initiation relay and verification of the proper operation of each initiation relay. --- Perform a CHANNEL FUNCTIONAL TEST on required CPIS Actuation Logic channel.	[18] months
SR 3.3.8.6	Perform a CHANNEL CALIBRATION on required containment radiation monitor channel.	[18] months
SR 3.3.8.7	Verify that response time of required CPIS channel is within limits.	[18] months
SR 3.3.8.8	Perform CHANNEL FUNCTIONAL TEST on required CPIS Manual Trip channel.	[18] months

3.3 INSTRUMENTATION

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.	-------------------NOTE-------------- LCO 3.0.4 is not applicable. ---	
	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. Two Actuation Logic channels inoperable. OR Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform a CHANNEL CHECK.	12 hours
SR 3.3.9.2	------------------------------NOTES----------------------------- 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. --- Perform a CHANNEL FUNCTIONAL TEST on each CVCS isolation channel with setpoints in accordance with the following Allowable Values: West Penetration Room Pressure - High $\leq$ .5 psig Letdown Heat Exchanger Room Pressure - High $\leq$ .5 psig	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.9.3	Perform a CHANNEL CALIBRATION on each CVCS isolation pressure indicating channel.	18 months

3.3 INSTRUMENTATION

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
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.	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.	 1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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.	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.	Immediately
	<u>OR</u>	
	C.2.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	C.2.2 ---------------NOTE-------------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. -------------------------------------	
	~~C.2.2~~ Suspend positive reactivity additions.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform a CHANNEL CHECK on the required control room radiation monitor channel.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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
SR 3.3.9.3	------------------------------NOTES----------------------------- 1. Surveillance 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 required to be tested during each MODE 5 entry exceeding 24 hours unless tested within the previous 6 months. --- Perform a CHANNEL FUNCTIONAL TEST on required CRIS Actuation Logic channel.	[18] months
SR 3.3.9.4	Perform a CHANNEL CALIBRATION on required CRIS radiation monitor channel.	[18] months
SR 3.3.9.5	Perform a CHANNEL FUNCTIONAL TEST on required CRIS Manual Trip channel.	[18] months
SR 3.3.9.6	**[** Verify that response time of required CRIS channel is within limits.	[18] months **]**

3.3 INSTRUMENTATION

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. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.10.1	Perform a CHANNEL FUNCTIONAL TEST on each SBFAS automatic actuation channel.	[92] days
SR 3.3.10.2	Perform a CHANNEL FUNCTIONAL TEST on each SBFAS Manual Trip channel.	[18] months

3.3 INSTRUMENTATION

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
SR 3.3.10.1	Perform a CHANNEL CHECK on required FHIS radiation monitor channel.	12 hours
SR 3.3.10.2	Perform a CHANNEL FUNCTIONAL TEST on required FHIS radiation monitor channel. Verify radiation monitor setpoint [Allowable Values]: **[** Airborne Particulate/ Iodine: ≤ [6E4] cpm above background **]** Airborne Gaseous: ≤ [6E4] cpm above background	92 days
SR 3.3.10.3	-------------------------------NOTE------------------------------ Testing of Actuation Logic shall include the actuation of each initiation relay and verification of the proper operation of each ignition relay. --- Perform a CHANNEL FUNCTIONAL TEST on required FHIS Actuation Logic channel.	[18] months
SR 3.3.10.4	Perform a CHANNEL FUNCTIONAL TEST on required FHIS Manual Trip logic.	[18] months
SR 3.3.10.5	Perform a CHANNEL CALIBRATION on required FHIS radiation monitor channel.	[18] months
SR 3.3.10.6	**[** Verify response time of required FHIS channel is within limits.	[18] months **]**

3.3 INSTRUMENTATION

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

--NOTES--

1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Enter the Condition referenced in Table 3.3.11-1 for the channel.	Immediately
F. As required by Required Action E.1 and referenced in Table 3.3.11-1.	F.1 Be in MODE 3. <u>AND</u> F.2 Be in MODE 4.	6 hours 12 hours
G. **[** As required by Required Action E.1 and referenced in Table 3.3.11-1.	G.1 Initiate action in accordance with Specification 5.6.7.	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
SR 3.3.11.2	------------------------------NOTE----------------------------- Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION.	[18] months

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

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

(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

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.

~~--NOTES--~~
~~1. LCO 3.0.4 is not applicable.~~

~~2. Separate Condition entry is allowed for each Function.~~
~~--~~

ACTIONS

--NOTES--
1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required 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 **]**

SURVEILLANCE		FREQUENCY
SR 3.3.12.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.12.3	-------------------------------NOTE------------------------------ Neutron detectors are excluded from the CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION for each required instrumentation channel.	[18] months
SR 3.3.12.4	**[** Perform CHANNEL FUNCTIONAL TEST of the reactor trip circuit breaker open/closed indication.	18 months **]**

3.3 INSTRUMENTATION

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.

~~-----NOTE-----~~
~~1. LCO 3.0.4 is not applicable.~~

~~2. Separate Condition entry is allowed for each Function.~~
~~----------~~

ACTIONS

-----NOTES-----

1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

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

SURVEILLANCE		FREQUENCY
SR 3.3.12.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.12.3	-------------------------------NOTE------------------------------ Neutron detectors are excluded from the CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION for each required instrumentation channel.	[18] months
SR 3.3.12.4	**[** Perform CHANNEL FUNCTIONAL TEST of the reactor trip circuit breaker open/closed indication.	18 months **]**

3.3 INSTRUMENTATION

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
A. One or more required channel(s) inoperable.	A.1 --------------NOTE-------------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ------------------------------------	
	~~A.1~~ Suspend all operations involving positive reactivity additions.	Immediately
	AND	
	A.2 Perform SDM verification in accordance with SR 3.1.1.1~~, if T_{avg} > 200 °F~~.	4 hours AND Once per 12 hours thereafter

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.13.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.13.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.13.3	-------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION.	[18] months

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 below:

a. Pressurizer pressure ≥ [2025] psia and ≤ [2275] psia,

b. RCS cold leg temperature (T_c)~~:~~

~~1.~~ ≥ [535]°F and ≤ [558]°F for < [70]% RTP or

~~2.~~ ≥ [544]°F and ≤ [588]°F for ≥ [70]% RTP, and

c. RCS total flow rate ≥ [148 E6] lb/hour.

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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 ≤ [30]% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure ≥ [2025] psia and ≤ [2275] psia.	12 hours
SR 3.4.1.2	Verify RCS cold leg temperature ~~:~~ ~~1.~~ ≥ [535]°F and ≤ [558]°F for < [70]% RTP or ~~2.~~ ≥ [544]°F and ≤ [558]°F for ≥ [70]% RTP.	12 hours
SR 3.4.1.3	-----------------------------NOTE----------------------------- Only required to be met in MODE 1. -- Verify RCS total flow rate ≥ [148 E6] ~~1~~lb/hour.	12 hours
SR 3.4.1.4	-----------------------------NOTE----------------------------- Not required to be performed until [24] hours after ≥ [90]% RTP. -- Verify by precision heat balance that RCS total flow rate within limits specified in the COLR.	[18] months

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°]F.

APPLICABILITY: MODE 1 with T_{avg} in one or more RCS loops < [535]°F,
MODE 2 with T_{avg} in one or more RCS loops < [535]°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]°F.	12 hours

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
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.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5 with RCS pressure < [500] psig.	6 hours 36 hours
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.	C.1 Initiate action to restore parameter(s) to within limits. AND C.2 Determine RCS is acceptable for continued operation.	Immediately Prior to entering MODE 4

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
	~~C.2 Determine RCS is acceptable for continued operation.~~	~~Prior to entering MODE 4~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	-------------------------------NOTE------------------------------ Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. --- Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates within limits specified in the PTLR.	30 minutes

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODE 3

LCO 3.4.5 [Two] ~~[Both]~~ RCS loops ~~[with at least one reactor coolant pump per loop]~~ shall be OPERABLE and one RCS loop shall be in operation.

---NOTE---
All reactor coolant pumps may ~~be~~ not be in operation for ≤ 1 hour per 8 hours period, provided:

a. No operations are permitted that would cause introduction into the RCS, coolant 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
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours
C. Two RCS loops inoperable. OR Required RCS loop not in ~~OPERATION~~operation.	C.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. AND	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	C.2	Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify one RCS loop is in operation.	12 hours
SR 3.4.5.2	Verify secondary side water level in each steam generator ≥ [25]%.	12 hours
SR 3.4.5.3	-------------------------------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

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~~ not be in operation for ≤ 1 hour per 8 hours period, provided:

   a. No operations are permitted that would cause introduction into the RCS, coolant 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 ≤ [285]°F unless:

   a. Pressurizer water level is < [60]% or

   b. Secondary side water temperature in each steam generator (SG) is < [100]°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 ~~non-operating~~second loop or train to OPERABLE status. AND	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 ---------------NOTE-------------- Only required to be met if SDC train is OPERABLE. -------------------------------------	
	~~A.2~~ Be in MODE 5.	24 hours
B. Two required loops or trains inoperable. OR Required loop or train not in operation.	B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.	Immediately
	AND	
	B.2 Initiate action to restore one loop or train to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required RCS loop or SDC train is in operation.	12 hours
SR 3.4.6.2	Verify secondary side water level in required SG(s) is $\geq$ [25]%.	12 hours
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

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. ~~The non-operating~~One additional SDC train shall be OPERABLE or

b. The secondary side water level of each steam generator (SG) shall be ≥ [25%].

--NOTES--

1. The SDC pump of the train in operation may ~~be~~ not be in operation for ≤ 1 hour per 8 hour period provided:

    a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1 and

    b. Core outlet temperature is maintained at ≥ 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 ≤ [285]°F 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. ~~Both~~ 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
A. One required SDC train inoperable. AND One SDC train OPERABLE.	A.1 Initiate action to restore a second SDC train to OPERABLE status. OR A.2 Initiate action to restore required SGs secondary side water level to within limit.	Immediately Immediately
B. One or more required SGs with secondary side water level not within limit. AND One SDC train OPERABLE.	B.1 Initiate action to restore a second SDC train to OPERABLE status. OR B.2 Initiate action to restore required SGs secondary side water level to within limit.	Immediately Immediately
C. No required SDC trains OPERABLE. OR Required SDC train not in operation.	C.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. AND C.2 Initiate action to restore one SDC train to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify required SDC train is in operation.	12 hours
SR 3.4.7.2	Verify required SG secondary side water level is ≥ [25]%.	12 hours
SR 3.4.7.3	-------------------------------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 SDC pump.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

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

---NOTES---

1. ~~Both~~ All SDC pumps may ~~be~~ not be in operation for ≤ 15 minutes when switching from one train to another provided:

   [a. The core outlet temperature is maintained > 10°F below saturation temperature, **]**

   b. No operations are permitted that would cause introduction into the RCS, coolant 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~~s~~ OPERABLE. <u>OR</u> Required SDC train not in operation.	B.1 Suspend operations that would cause introduction into the RCS, coolant 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
SR 3.4.8.2	------------------------------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 SDC pump.	7 days

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] ≥ [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. AND A.2 Be in MODE 4.	6 hours [12] hours
B. One [required] group of pressurizer heaters inoperable.	B.1 Restore [required] group of pressurizer heaters to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	6 hours [12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level is < [60]%.	12 hours
---------------------------------REVIEWER'S NOTE-------------------------------- The frequency for performing ~~Pressurizer~~ 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. ~~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.~~ ---		
SR 3.4.9.2	Verify capacity of each required group of pressurizer heaters ≥ [150] kW.	[18] months
SR 3.4.9.3	**[** Verify required pressurizer heaters are capable of being powered from an emergency power supply.	[18] months **]**

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 ≥ [2475] psia and ≤ [2525] psia.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures > [285]°F.

---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 ≤ [285]°F.	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 ± 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

---NOTES---

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

2. LCO 3.0.4 is not applicable.

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.	1 hour
	AND	
	B.2 Remove power from associated block valve.	1 hour
	AND	
	B.3 Restore PORV to OPERABLE status.	72 hours
C. One block valve inoperable.	C.1 Place associated PORV in manual control.	1 hour
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	C.2	Restore block valve to OPERABLE status.	72 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	D.2	Be in MODE 4.	[12] hours
E. Two PORVs inoperable and not capable of being manually cycled.	E.1	Close associated block valves.	1 hour
	<u>AND</u>		
	E.2	Remove power from associated block valves.	1 hour
	<u>AND</u>		
	E.3	Be in MODE 3.	6 hours
	<u>AND</u>		
	E.4	Be in MODE 4.	[12] hours
F. Two block valves inoperable.	F.1	Restore at least one block valve to OPERABLE status.	2 hours
G. Required Action and associated Completion Time of Condition F not met.	G.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	G.2	Be in MODE 4.	[12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	------------------------------NOTES---------------------------- 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. --- Perform a complete cycle of each block valve.	 [92] days
SR 3.4.11.2	-------------------------------NOTE----------------------------- Only required to be performed in MODES 1 and 2. --- Perform a complete cycle of each PORV.	 [18] months
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.	[18] months **]**
SR 3.4.11.4	**[** Verify PORVs and block valve(s) are capable of being powered from an emergency power supply.	[18] months **]**

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 ~~either~~:

---NOTES---

1. [Two charging pumps] may be made capable of injecting for ≤ ~~1~~ 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 ≤ [450] psig or

b. The RCS depressurized and an RCS vent of ≥ [1.3] square inches.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is ≤ [285]°F,
MODE 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

~~---NOTE---~~

~~SIT isolation is only required when SIT pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.~~

~~---~~

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify a maximum of one HPSI pump is capable of injecting into the RCS.	12 hours
SR 3.4.12.2	Verify a maximum of one charging pump is capable of injecting into the RCS.	12 hours
SR 3.4.12.3	Verify each SIT is isolated.	12 hours
SR 3.4.12.4	Verify required RCS vent ≥ [1.3] square inches is open.	12 hours for unlocked open vent valve(s) <u>AND</u> 31 days for other vent path(s)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.5	Verify PORV block valve is open for each required PORV.	72 hours
SR 3.4.12.6	-------------------------------NOTE------------------------------ Not required to be performed until [12] hours after decreasing RCS cold leg temperature to ≤ [285]°F. --- Perform CHANNEL FUNCTIONAL TEST on each required PORV, excluding actuation.	 31 days
SR 3.4.12.7	Perform CHANNEL CALIBRATION on each required PORV actuation channel.	[18] months

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,

d. 1 gpm total primary to secondary LEAKAGE through all steam generators (SGs), and

e. [720] gallons per day primary to secondary LEAKAGE through any one SG.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Pressure boundary LEAKAGE exists.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	------------------------------NOTE------------------------------ Not required to be performed until 12 hours after establishment of steady state operation. -- Verify RCS Operational LEAKAGE is within limits by performance of RCS water inventory balance.	 72 hours
SR 3.4.13.2	Verify SG tube integrity is in accordance with the Steam Generator Tube Surveillance Program.	In accordance with the Steam Generator Tube Surveillance Program

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	-----------------------------NOTES----------------------------- 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. --- 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 ≥ [2215] psia and ≤ [2255] psia.	In accordance with the Inservice Testing Program, and [18] months AND 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 AND Within 24 hours following valve actuation due to automatic or manual action or flow through the valve

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 ≥ [425] psig.	[18] months]
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 ≥ [600] psig.	[18] months]

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

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump monitor inoperable. [OR Required containment air cooler flow rate monitor inoperable.]	A.1 ---------------NOTE-------------- Not required to be performed until 12 hours after establishment of steady state operation. ------------------------------------- Perform SR 3.4.13.1.	 Once per 24 hours
	AND	
	A.2 Restore containment sump monitor to OPERABLE status.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required containment atmosphere radioactivity monitor inoperable.	B.1.1 Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR	
	B.1.2 ---------------NOTE-------------- Not required to be performed until 12 hours after establishment of steady state operation. -------------------------------------	
	Perform SR 3.4.13.1.	Once per 24 hours
	AND	
	B.2.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
	OR	
	B.2.2 **[** Verify containment air cooler condensate flow rate monitor is OPERABLE.	30 days **]**
C. **[** Required containment air cooler condensate flow rate monitor inoperable.	C.1 ---------------NOTE-------------- Not required to be performed until 12 hours after establishment of steady state operation. -------------------------------------	
	Perform SR 3.4.15.1.	Once per 8 hours
	OR	
	C.2 Perform SR 3.4.13.1.	Once per 24 hours **]**

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. **[** Required containment atmosphere radioactivity monitor inoperable. AND Required containment air cooler condensate flow rate monitor inoperable.	D.1	Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
	OR		
	D.2	Restore required containment air cooler condensate flow rate monitor to OPERABLE status.	30 days **]**
E. Required Action and associated Completion Time not met.	E.1	Be in MODE 3.	6 hours
	AND		
	E.2	Be in MODE 5.	36 hours
F. All required monitors inoperable.	F.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.	[12] hours
SR 3.4.15.2	Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitor.	92 days
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the required containment sump monitor.	[18] months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.15.4	Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitor.	[18] months
SR 3.4.15.5	**[** Perform CHANNEL CALIBRATION of the required containment air cooler condensate flow rate monitor.	[18] months **]**

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 The specific activity of the reactor coolant shall be within limits.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS average temperature (T_{avg}) $\geq$ 500°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 μCi/gm.	--------------------NOTE-------------- LCO 3.0.4 is not applicable. --	
	A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1.	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. Required Action and associated Completion Time of Condition A not met. OR DOSE EQUIVALENT I-131 in the unacceptable region of Figure 3.4.16-1.	B.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Gross specific activity of the reactor coolant not within limit.	C.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify reactor coolant gross specific activity ≤ 100/Ē μCi/gm.	7 days
SR 3.4.16.2	-------------------------------NOTE------------------------------ Only required to be performed in MODE 1. -- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm.	14 days <u>AND</u> Between 2 and 6 hours after THERMAL POWER change of ≥ 15% RTP within a 1 hour period
SR 3.4.16.3	-------------------------------NOTE------------------------------ Not required to be performed until 31 days after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. -- Determine Ē from a sample taken in MODE 1 after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.	184 days

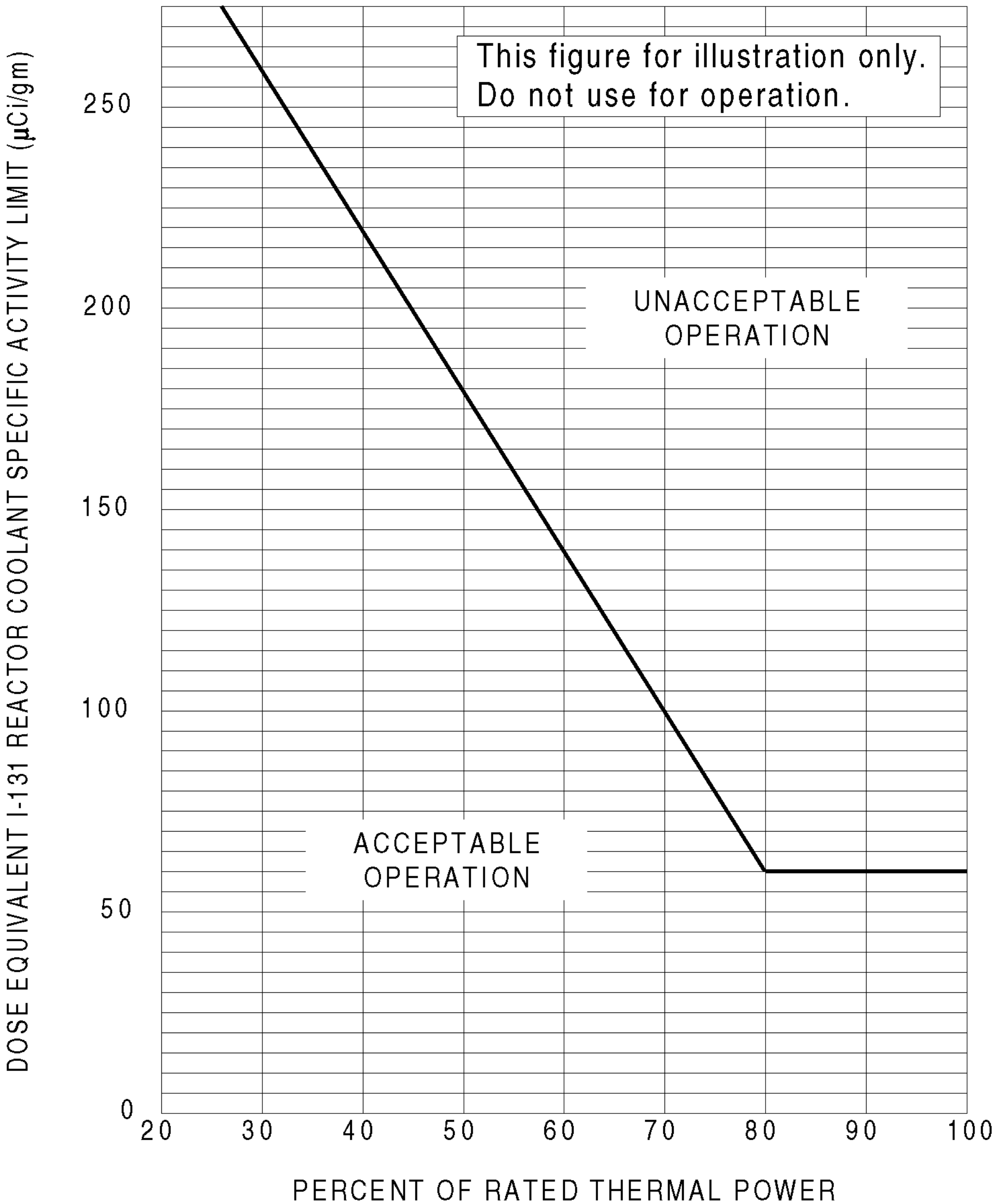

Figure 3.4.16-1 (page 1 of 1)
Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity Limit
Versus Percent of RATED THERMAL POWER With Reactor Coolant
Specific Activity >1.0 μCi/gm DOSE EQUIVALENT I-131

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 ≤ 5% RTP and

b. The reactor trip setpoints of the OPERABLE power level channels are set ≤ 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 ≤ 5% RTP.	1 hour
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

3.5 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
A. One SIT inoperable due to boron concentration not within limits. <u>OR</u> One SIT inoperable due to the inability to verify level or pressure.	A.1 Restore SIT to OPERABLE status.	72 hours
B. One SIT inoperable for reasons other than Condition A.	B.1 Restore SIT to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Reduce pressurizer pressure to < [700] psia.	6 hours 2 hours
D. Two or more SITs inoperable.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each SIT isolation valve is fully open.	12 hours
SR 3.5.1.2	Verify borated water volume in each SIT is ≥ [28% narrow range (1802 cubic feet) and ≤ 72% narrow range (1914 cubic feet)].	12 hours
SR 3.5.1.3	Verify nitrogen cover pressure in each SIT is ≥ [615] psig and ≤ [655] psig.	12 hours
SR 3.5.1.4	Verify boron concentration in each SIT is ≥ [1500] ppm and ≤ [2800] ppm.	31 days <u>AND</u> --------NOTE-------- Only required to be performed for affected SIT ------------------------ Once within 6 hours after each solution volume increase of ≥ [1]% of tank volume that is not the result of addition from the refueling water tank
SR 3.5.1.5	Verify power is removed from each SIT isolation valve operator when pressurizer pressure is ≥ [2000] psia.	31 days

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
-----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. -------------------------------------		
A. One LPSI subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days
B. One or more trains inoperable for reasons other than Condition A.	B.1 Restore train(s) to OPERABLE status.	72 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	AND	
	C.2 Reduce pressurizer pressure to < [1700] psia.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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]. Valve Number / Position / Function [ ] / [ ] / [ ] [ ] / [ ] / [ ] [ ] / [ ] / [ ]	12 hours **]**
SR 3.5.2.2	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.	31 days
SR 3.5.2.3	**[** Verify ECCS piping is full of water.	31 days **]**
SR 3.5.2.4	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.5.2.5	**[** Verify each charging pump develops a flow of ≥ [36] gpm at a discharge pressure of ≥ [2200] psig.	In accordance with the Inservice Testing Program **]**

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	Verify each ECCS automatic valve that is not locked, sealed, or otherwise secured in position, in the flow path actuates to the correct position on an actual or simulated actuation signal.	[18] months
SR 3.5.2.7	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	[18] months
SR 3.5.2.8	Verify each LPSI pump stops on an actual or simulated actuation signal.	[18] months
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 **]**
SR 3.5.2.10	Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet trash racks and screens show no evidence of structural distress or abnormal corrosion.	[18] months

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

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 SR 3.5.2.10	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. <u>OR</u> RWT borated water temperature not within limits.	A.1 Restore RWT to OPERABLE status.	8 hours
B. RWT inoperable for reasons other than Condition A.	B.1 Restore RWT to OPERABLE status	1 hour
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 3.5.4.1	-------------------------------NOTE------------------------------ **[** Only required to be performed when ambient air temperature is < [40]°F or > [100]°F. **]** --- Verify RWT borated water temperature is ≥ [40]°F and ≤ [100]°F.	 24 hours
SR 3.5.4.2	Verify RWT borated water volume is ≥ [362,800 gallons, (88)%] [above the ECCS suction connection].	7 days
SR 3.5.4.3	Verify RWT boron concentration is ≥ [1720] ppm and ≤ [2500] ppm.	7 days

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.5 Trisodium Phosphate (TSP)

LCO 3.5.5 The TSP baskets shall contain ≥ [291] ft^3 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. AND B.2 Be in MODE 4.	6 hours [12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.5.1	Verify the TSP baskets contain ≥ [291] ft^3 of trisodium phosphate.	[18] months
SR 3.5.5.2	Verify that a sample from the TSP baskets provides adequate pH adjustment of RWT water.	[18] months

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. AND B.2 Be in MODE 5.	6 hours 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
A. One or more containment air locks with one containment air lock door inoperable.	-------------------NOTES------------- 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]. ---	
	A.1 Verify the OPERABLE door is closed in the affected air lock. AND	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 Lock the OPERABLE door closed in the affected air lock.	24 hours
	AND	
	A.3 ---------------NOTE-------------- Air lock doors in high radiation areas may be verified locked closed by administrative means. -------------------------------------	
	Verify the OPERABLE door is locked closed in the affected air lock.	Once per 31 days
B. One or more containment air locks with containment air lock interlock mechanism inoperable.	------------------NOTES------------- 1. Required Actions B.1, B.2, and B.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit of containment is permissible under the control of a dedicated individual. --	
	B.1 Verify an OPERABLE door is closed in the affected air lock.	1 hour
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.2	Lock an OPERABLE door closed in the affected air lock.	24 hours
	AND		
	B.3	---------------NOTE-------------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ------------------------------------- Verify an OPERABLE door is locked closed in the affected air lock.	 Once per 31 days
C. One or more containment air locks inoperable for reasons other than Condition A or B.	C.1	Initiate action to evaluate overall containment leakage rate per LCO 3.6.1.	Immediately
	AND		
	C.2	Verify a door is closed in the affected air lock.	1 hour
	AND		
	C.3	Restore air lock to OPERABLE status.	24 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.2.2	Verify only one door in the air lock can be opened at a time.	24 months

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
A. ------------NOTE------------ Only applicable to penetration flow paths with two [or more] containment isolation valves. -------------------------------- One or more penetration flow paths with one containment isolation valve inoperable [for reasons other than Condition[s] D [and E]].	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. <u>AND</u>	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.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.	Once per 31 days for isolation devices outside containment <u>AND</u> Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. ------------NOTE------------ Only applicable to penetration flow paths with two [or more] containment isolation valves. --------------------------------- One or more penetration flow paths with two [or more] containment isolation valves inoperable [for reasons other than Condition[s] D [and E]].	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ------------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.	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. <u>AND</u> C.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.	[72] hours Once per 31 days
D. **[** One or more secondary containment bypass leakage [or purge valve leakage] not within limit.	D.1 Restore leakage within limit.	4 hours for secondary containment bypass leakage <u>AND</u> 24 hours for purge valve leakage **]**

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. **[** One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	E.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].	24 hours
	<u>AND</u>	
	E.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.	Once per 31 days for isolation devices outside containment <u>AND</u> Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	E.3	Perform SR 3.6.3.6 for the resilient seal purge valves closed to comply with Required Action E.1.	Once per [ ] days **]**
F. Required Action and associated Completion Time not met.	F.1 <u>AND</u>	Be in MODE 3	6 hours
	F.2	Be in MODE 5.	36 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 **]**
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
SR 3.6.3.3	-------------------------------NOTE----------------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. --- 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.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.4	------------------------------NOTE------------------------------ Valves and blind flanges in high radiation areas may be verified by use of administrative means. -- 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.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.5	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	**[** In accordance with the Inservice Testing Program or 92 days **]**
SR 3.6.3.6	Perform leakage rate testing for containment purge valves with resilient seals.	184 days <u>AND</u> Within 92 days after opening the valve
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.	[18] months
SR 3.6.3.8	**[** Verify each [ ] inch containment purge valve is blocked to restrict the valve from opening > [50]%.	[18] months **]**
SR 3.6.3.9	**[** Verify the combined leakage rate for all secondary containment bypass leakage paths is ≤ [L_a] when pressurized to ≥ [psig].	In accordance with the Containment Leakage Rate Testing Program **]**

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. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1	Verify containment pressure is within limits.	12 hours

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature (Atmospheric and Dual)

LCO 3.6.5 Containment average air temperature shall be ≤ [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	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1	Verify containment average air temperature is within limit.	24 hours

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

--REVIEWER'S NOTE---
Licensees must implement a program, as specified in Specification 5.5.17, to monitor battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications."

LCO 3.8.6 Battery parameters for the Train A and Train B 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 train] with one or more battery cells float voltage < [2.07] V.	A.1	Perform SR 3.8.4.1.	2 hours
	AND		
	A.2	Perform SR 3.8.6.1.	2 hours
	AND		
	A.3	Restore affected cell voltage ≥ [2.07] V.	24 hours
B. One [or two] batter[y][ies on one train] with float current > [2] amps.	B.1	Perform SR 3.8.4.1.	2 hours
	AND		
	B.2	Restore battery float current to ≤ [2] amps.	[12] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
---------------NOTE------------- Required Action C.2 shall be completed if electrolyte level was below the top of plates. ------------------------------------- C. One [or two] batter[y][ies on one train] with one or more cells electrolyte level less than minimum established design limits.	-------------------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. AND C.2 Verify no evidence of leakage. AND C.3 Restore electrolyte level to greater than or equal to minimum established design limits.	 8 hours 12 hours 31 days
D. One [or two] batter[y][ies on one train] with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. One or more batteries in redundant trains with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one train to within limits.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> One [or two] batter[y][ies on one train] with one or more battery cells float voltage < [2.07] V and float current > [2] amps.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	-------------------------------NOTE------------------------------ Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. --- Verify each battery float current is ≤ [2] amps.	7 days
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ [2.07] V.	31 days
SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	31 days
SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.5	Verify each battery connected cell voltage is ≥ [2.07] V.	92 days
SR 3.8.6.6	-------------------------------NOTE------------------------------ This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. This Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. ~~However, c~~Credit may be taken for unplanned events that satisfy this SR. ---	
	Verify battery capacity is ≥ [80%] of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	60 months AND 12 months when battery shows degradation, or has reached [85]% of the expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached [85]% of the expected life with capacity ≥ 100% of manufacturer's rating

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
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, [frequency,] and alignment to required AC vital buses.	7 days

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 ~~licensing basis (~~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. OR A.2.1 Suspend CORE ALTERATIONS. AND	Immediately Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct inverter voltage, [frequency,] and alignments to required AC vital buses.	7 days

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
A. One or more AC electrical power distribution subsystems inoperable.	--------------------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. --- A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours <u>AND</u> 16 hours from discovery of failure to meet LCO
B. One or more AC vital buses inoperable.	B.1 Restore AC vital bus subsystem(s) to OPERABLE status.	2 hours <u>AND</u> 16 hours from discovery of failure to meet LCO

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>AND</u> 16 hours from discovery of failure to meet LCO
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

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 CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of [recently] irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.4 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status. AND A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems.	7 days

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 CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2 Suspend positive reactivity additions.	Immediately
	<u>AND</u>	
	A.3 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

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 CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
B. Two [required] SRMs inoperable.	B.1 Initiate action to restore one SRM to OPERABLE status.	Immediately
	AND	
	B.2 Perform SR 3.9.1.1.	Once per 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Perform CHANNEL CHECK.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.9.2.2	-------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION.	[18] months

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
SR 3.9.3.2	-------------------------------NOTE------------------------------ Not required to be met for containment purge and exhaust valve(s) in penetrations closed to comply with LCO 3.9.3.c.1. --- Verify each required containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal.	[18] months

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~~ not be in operation for ≤ 1 hour per [8] hour~~s~~ period, provided no operations are permitted that would cause introduction into the Reactor Coolant System, coolant 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
	AND	
	A.~~1~~2 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
	AND	
	A.~~2~~3 Suspend loading irradiated fuel assemblies in the core.	Immediately
	AND	
	A.~~3~~4 Close equipment hatch and secure with [four] bolts.	4 hours
	AND	

CONDITION	REQUIRED ACTION	COMPLETION TIME

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.~~4~~5 Close one door in each air lock.	4 hours
	AND	
	A.~~5~~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.	4 hours
	OR	
	A.~~5~~6.2 Verify each penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.	4 hours

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 ≥ [2200] gpm.	12 hours

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 de-energized 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 ~~a reduction of~~introduction into the Reactor Coolant System, coolant with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1, ~~boron concentration~~ 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. OR A.2 Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No SDC loop OPERABLE or in operation.	B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
	<u>AND</u>	
	B.2 Initiate action to restore one SDC loop to OPERABLE status and to operation.	Immediately
	<u>AND</u>	
	B.3 Close equipment hatch and secure with [four] bolts.	4 hours
	<u>AND</u>	
	B.4 Close one door in each air lock.	4 hours
	<u>AND</u>	
	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.	4 hours
	<u>OR</u>	
	B.5.2 Verify each penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify required SDC loops are OPERABLE and one SDC loop is in operation.	12 hours
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

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

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 (UO_2) 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. $k_{eff} \leq 0.98$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in [Section 9.1 of the FSAR],

c. $k_{eff} \leq 0.98$ 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.

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.

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.f 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. Administrative procedures shall be developed and implemented to limit the working hours of personnel who perform safety related functions (e.g., [licensed Senior Reactor Operators (SROs), licensed Reactor Operators (ROs), health physicists, auxiliary operators, and key maintenance personnel]).

   The controls shall include guidelines on working hours that ensure adequate shift coverage shall be maintained without routine heavy use of overtime.

   Any deviation from the above guidelines shall be authorized in advance by the plant manager or the plant manager's designee, in accordance with approved administrative procedures, and with documentation of the basis for granting the deviation. Routine deviation from the working hour guidelines shall not be authorized.

   Controls shall be included in the procedures to require a periodic independent review be conducted to ensure that excessive hours have not been assigned.

e. The operations manager or assistant operations manager shall hold an SRO license.

f. 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.

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 ~~r~~Reactor ~~o~~Operat~~ion~~or (RO) are those individuals who, in addition to meeting the requirements of ~~T~~Specification 5.3.1, perform the functions described in 10 CFR 50.54(m).

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 [5.6.2] and Specification [5.6.3].

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.

This program provides controls that ensure the capability to obtain and analyze reactor coolant, radioactive gases, and particulates in plant gaseous effluents and containment atmosphere samples under accident conditions. The program shall include the following:

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:

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

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 ~~lease~~ 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,

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 $\leq$ 500 mrem/yr to the whole body and a dose rate $\leq$ 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 $\leq$ 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,

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

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 [Regulatory Guide 1.35, Revision 3, 1989].

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Tendon Surveillance Program inspection frequencies. **]**

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 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as follows:

5.5 Programs and Manuals

5.5.8 Inservice Testing Program (continued)

ASME Boiler and Pressure Vessel Code and applicable Addenda terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies for performing inservice testing activities,

c. The provisions of SR 3.0.3 are applicable to inservice testing activities, and

d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any TS.

5.5.9 Steam Generator (SG) Tube Surveillance Program

---------------------------------------REVIEWER'S NOTE---------------------------------------
The Licensee's current licensing basis steam generator tube surveillance requirements shall be relocated from the LCO and included here. An appropriate administrative controls program format should be used.

The provisions of SR 3.0.2 are applicable to the SG Tube Surveillance Program ~~test frequencies~~.

5.5.10 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,

5.5 Programs and Manuals

5.5.10 Secondary Water Chemistry Program (continued)

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

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.

5.5.11 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 [± 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 [± 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 [± 10%].

ESF Ventilation System	Flowrate
[ ]	[ ]

5.5 Programs and Manuals

5.5.11 Ventilation Filter Testing Program (continued)

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.

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~~ 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.

5.5 Programs and Manuals

5.5.11 Ventilation Filter Testing Program (continued)

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 [± 10%].

ESF Ventilation System	Delta P	Flowrate
[ ]	[ ]	[ ]

[e. Demonstrate that the heaters for each of the ESF systems dissipate the value specified below [± 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.

5.5.12 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),

5.5 Programs and Manuals

5.5.12 Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

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.

5.5.13 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,

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

5.5 Programs and Manuals

5.5.13 Diesel Fuel Oil Testing Program (continued)

c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days in accordance with ASTM D-2276, Method A-2 or A-3.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program test frequencies.

5.5.14 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 ~~either~~:

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.

d. Proposed changes that meet the criteria of 5.5.14b 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).

5.5.15 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,

5.5 Programs and Manuals

5.5.13 Safety Function Determining Program (continued)

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,~~ and assuming~~ 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.

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.

5.5.16 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:

5.5 Programs and Manuals

5.5.16 Containment Leakage Rate Testing Program (continued)

1. Containment leakage rate acceptance criterion is ≤ 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 ≤ [0.05 L_a] when tested at ≥ P_a.

   b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥10 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.

[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. . . .]

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 ≤ 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.

5.5 Programs and Manuals

5.5.16 Containment Leakage Rate Testing Program (continued)

2. Air lock testing acceptance criteria are:

   a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

   b) For each door, leakage rate is ≤ [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.

[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. . . .]

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 ≤ 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][≤ 0.75 L_a for Option B Type A tests].

5.5 Programs and Manuals

5.5.16 Containment Leakage Rate Testing Program (continued)

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 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.

5.5.17 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, based on [the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer] including the following

a. Actions to restore battery cells with float voltage < [2.13] V, and

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

The following reports shall be submitted in accordance with 10 CFR 50.4.

5.6.1 Occupational Radiation Exposure 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. **]**

A tabulation on an annual basis of the number of station, utility, and other personnel (including contractors), for whom monitoring was performed, receiving an annual deep dose equivalent > 100 mrems and the associated collective deep dose equivalent (reported in person - rem) according to work and job functions (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance [describe maintenance], waste processing, and refueling). This tabulation supplements the requirements of 10 CFR 20.2206. The dose assignments to various duty functions may be estimated based on pocket ionization chamber, thermoluminescence dosimeter (TLD), electronic dosimeter, or film badge measurements. Small exposures totaling < 20 percent of the individual total dose need not be accounted for. In the aggregate, at least 80 percent of the total deep dose equivalent received from external sources should be assigned to specific major work functions. The report covering the previous calendar year shall be submitted by April 30 of each year. [The initial report shall be submitted by April 30 of the year following the initial criticality.]

5.6.2 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.

5.6 Reporting Requirements

5.6.2 Annual Radiological Environmental Operating Report (continued)

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.

5.6.3 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.

5.6.4 Monthly Operating Reports

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

   [The individual specifications that address core operating limits must be referenced here. **]**

5.6 Reporting Requirements

5.6.5 ~~Core~~ CORE ~~Operating~~ OPERATING ~~Limits~~ LIMITS ~~Report~~ REPORT (COLR) (continued)

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:

[Identify the Topical Report(s) by number and title or identify the staff Safety Evaluation Report for a plant specific methodology by NRC letter and date. The COLR will contain the complete identification for each of the TS referenced topical reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements).**]**

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling System (ECCS) limits, nuclear limits such as 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.

5.6.6 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

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. **]**

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:

[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.

5.6 Reporting Requirements

5.6.6 RCS Pressure and Temperature Limits Report (continued)

--------------------------------------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.

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.

5.6.7 Post Accident Monitoring Report

When a report is required by Condition B or G of LCO 3.3.[~~17~~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 Reporting Requirements

5.6.8 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. **]**

5.6.9 Steam Generator Tube Inspector Report

--------------------------------------REVIEWER'S NOTES--------------------------------------

1. Reports required by the Licensee's current licensing basis regarding steam generator tube surveillance requirements shall be included here. An appropriate administrative controls format should be used.

2. These reports may be required covering inspection, test, and maintenance activities. These reports are determined on an individual basis for each unit and their preparation and submittal are designated in the Technical Specifications.

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 <u>High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at ~~30~~ 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation</u>

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~~ 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~~d~~ 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~~ 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 my 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 ~~one of the following~~:

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 ~~the~~ 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.