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Vol. 1

Standard Technical Specifications
Combustion Engineering Plants

Specifications

Issued by the
U.S. Nuclear Regulatory Commission

Office of Nuclear Reactor Regulation

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PREFACE

This NUREG contains improved Standard Technical Specifications (STS) for Combustion Engineering (CE) plants and documents the positions of the Nuclear Regulatory Commission (NRC) based on the CE Owners Group's proposed STS. This document is the result of extensive technical meetings and discussions among the NRC staff, the Nuclear Steam Supply System (NSSS) Owners Groups, the NSSS vendors, and the Nuclear Management and Resources Council. The improved STS were developed based on the criteria in the interim Commission Policy Statement on Technical Specification Improvements for Nuclear Power Reactors, dated February 6, 1987. The improved STS will be used as the basis for developing improved plant-specific technical specifications by individual nuclear power plant licensees.

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1.0 USE AND APPLICATION

1.1 Definitions

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

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
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. $$ASI = \frac{lower - upper}{lower + upper}$$
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. $$T_q = Max \left| \frac{P_{quad} - P_{avg}}{P_{avg}} \right|$$
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

(continued)

1.1 Definitions

CHANNEL CALIBRATION (continued)	the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors shall consist of an inplace cross calibration of the sensing elements and normal calibration of the remaining adjustable devices in the channel. Whenever a sensing element is replaced, the next required inplace cross calibration consists of comparing the other sensing elements with the recently installed sensing element. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated.
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 channels—the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarms, interlocks, display and trip functions; b. Bistable channels (e.g., pressure switches and switch contacts)—the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarm and trip functions; or

(continued)

1.1 Definitions

CHANNEL FUNCTIONAL TEST (continued)	c. 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, including alarm and trip functions. 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 or manipulation of any fuel, sources, reactivity control components, or other components [excluding control element assemblies (CEAs) withdrawn into the upper guide structure] affecting reactivity within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
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 5.9.1.6. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in [Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites," or those listed in Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977].

(continued)

1.1 Definitions (continued)

$\bar{E}$—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.
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 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 3. Reactor Coolant System (RCS) LEAKAGE through a steam generator (SG) to the Secondary System.

(continued)

1.1 Definitions

LEAKAGE (continued)	b. Unidentified LEAKAGE All LEAKAGE that is not identified LEAKAGE. 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 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.

(continued)

1.1 Definitions (continued)

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 5.9.1.7. 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 PROTECTIVE 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.
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. b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the [nominal zero power design level]. [c. There is no change in part length CEA position.]

(continued)

1.1 Definitions

SHUTDOWN MARGIN (SDM) (continued)	With any CEAs not capable of being fully inserted, the reactivity worth of these CEAs must be accounted for in the determination of SDM.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
UNRODDED INTEGRATED RADIAL PEAKING FACTOR (F_r)—Analog	The UNRODDED INTEGRATED RADIAL PEAKING FACTOR shall be the ratio of the peak pin power to the average pin power in the unrodded core, excluding tilt.
UNRODDED PLANAR RADIAL PEAKING FACTOR (F_{xy})—Analog	The UNRODDED PLANAR RADIAL PEAKING FACTOR shall be the maximum ratio of the peak to the average power density of the individual fuel rods in any of the unrodded horizontal planes, excluding tilt.

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 AND and OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.

BACKGROUND

Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentions of the logical connectors.

When logical connectors are used to state a Condition, only the first level of logic is used, and the logical connector is left justified with the Condition statement.

When logical connectors are used to state a 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 Completion Time, Surveillance, or Frequency.

EXAMPLES

The following examples illustrate the use of logical connectors.

(continued)

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.

(continued)

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

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.

(continued)

1.3 Completion Times

DESCRIPTION (continued)

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

a. Must exist concurrent with the first inoperability; and

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

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

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

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

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

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

(continued)

1.3 Completion Times (continued)

EXAMPLES

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

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. 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.

(continued)

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 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, 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.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-2 (continued)

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.

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.

(continued)

1.3 Completion Times

EXAMPLES (continued)

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

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-3 (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.

(continued)

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 any extensions) expires while one or more valves are still inoperable, Condition B is entered.

(continued)

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 Condition A, the Note may appear in the Condition column.

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.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-5 (continued)

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

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

EXAMPLE 1.3-6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x. 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

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-6 (continued)

Entry into Condition A offers a choice between Required Action A.1 or A.2. Required Action A.1 has a "once per" Completion Time, which qualifies for the 25% extension, per SR 3.0.2, to each performance after the initial performance. If Required Action A.1 is followed and the Required Action is not met within the Completion Time (including the 25% 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.

(continued)

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. AND A.2 Restore subsystem to OPERABLE status.	1 hour AND Once per 8 hours thereafter 72 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

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 (including the 25% extension allowed by SR 3.0.2), Condition B is entered.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-7 (continued)

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. Since the second Completion Time of Required Action A.1 has a modified "time zero" (i.e., after the initial 1 hour, not from time of Condition entry), the allowance for a Completion Time extension does not apply.

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, 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.

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.

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.

(continued)

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.

(continued)

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 25% extension allowed by SR 3.0.2. "Thereafter" indicates future performances must be established per SR 3.0.2, but only after a specified condition is first met (i.e., the "once" performance in this example). If reactor power decreases to < 25% RTP, the measurement of both intervals stops. New intervals start upon reactor power reaching 25% RTP.

(continued)

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

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

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

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches ≥ 25% RTP to perform the Surveillance. The Surveillance is still considered to be performed within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day (plus 25% per 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 ≥ 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; MODE changes then would be restricted in accordance with SR 3.0.4 and the provisions of SR 3.0.3 would apply.

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) (adjusted for fuel rod dynamics) shall be maintained at ≤ [21.0] kW/ft.

2.1.2 Reactor Coolant System (RCS) Pressure SL

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

2.2 SL 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.

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

2.2.4 Within 24 hours, notify the [Plant Superintendent and Vice President—Nuclear Operations] and the [onsite plant reviewers specified in Specification 5.5.1, "Plant Reviews"].

2.2.5 Within 30 days of the violation, a Licensee Event Report (LER) shall be prepared pursuant to 10 CFR 50.73. The LER shall be submitted to the NRC, the [onsite plant reviewers specified in

(continued)

2.0 SLs (Digital)

2.2 SL Violations (continued)

Specification 5.5.1], and the [Plant Superintendent and Vice President—Nuclear Operations].

2.2.6 Operation of the unit shall not be resumed until authorized by the NRC.

2.0 SAFETY LIMITS (SLs) (Analog)

2.1 SLs

2.1.1 Reactor Core SLs

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.

2.1.2 Reactor Coolant System (RCS) Pressure SL

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

2.2 SL 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.

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

2.2.4 Within 24 hours, notify the [Plant Superintendent and Vice President—Nuclear Operations] and the [onsite plant reviewers specified in Specification 5.5.1, "Plant Reviews"].

2.2.5 Within 30 days, a Licensee Event Report (LER) shall be prepared pursuant to 10 CFR 50.73. The LER shall be submitted to the NRC, the [onsite plant reviewers specified in Specification 5.5.1], and the [Plant Superintendent and Vice President—Nuclear Operations].

2.2.6 Operation of the unit shall not be resumed until authorized by the NRC.

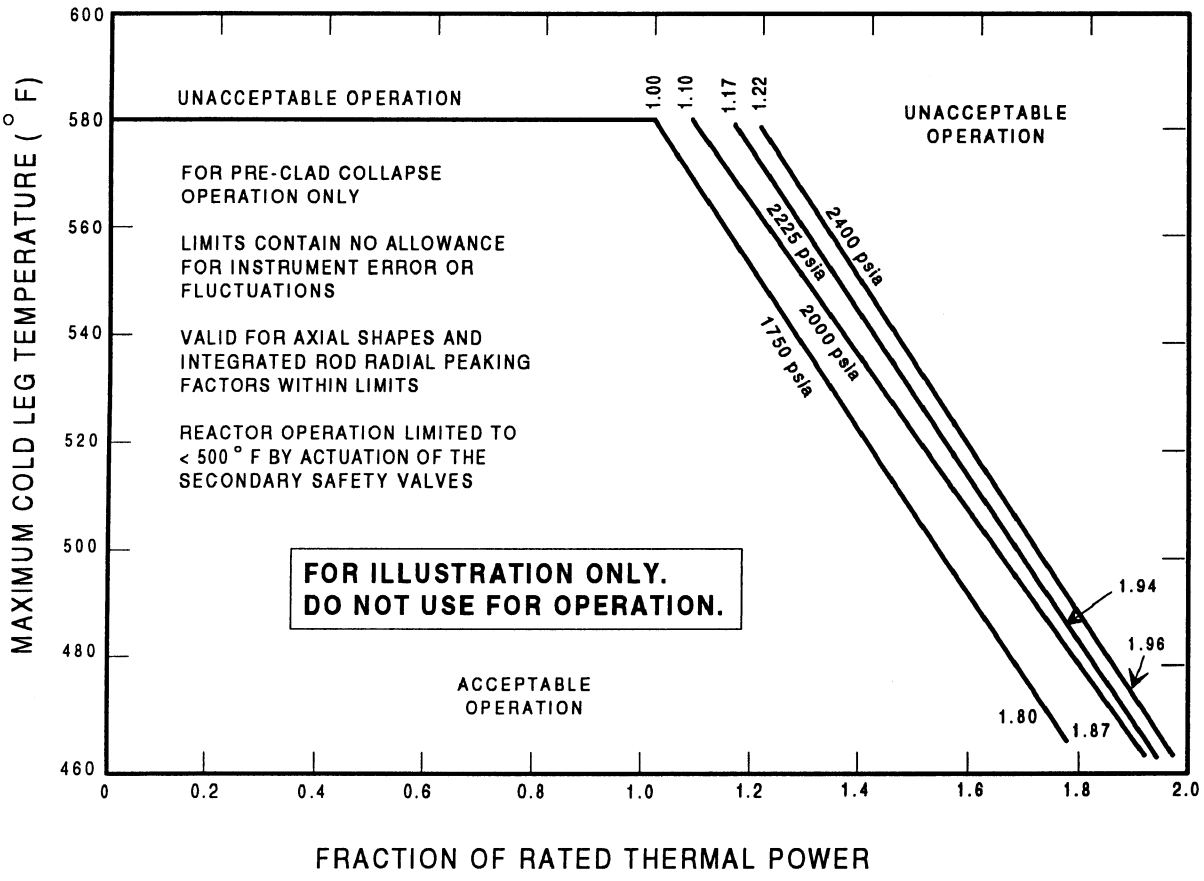

Figure 2.1.1-1 (page 1 of 1)
Reactor Core Thermal Margin Safety Limit

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 3.0.6.

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 or an associated ACTION is not provided, 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 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

(continued)

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS.

Exceptions to this Specification are stated in the individual Specifications. These exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered allow unit operation in the MODE or other specified condition in the Applicability only for a limited period of time.

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, additional evaluations and limitations may be required in accordance with Specification 5.8, "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.

(continued)

3.0 LCO APPLICABILITY (continued)

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

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1

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

SR 3.0.2

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

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

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

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3

If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is less. This delay period is permitted to allow performance of the Surveillance.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered. The Completion Times of the Required Actions begin immediately upon expiration of the delay period.

(continued)

3.0 SR APPLICABILITY

SR 3.0.3 (continued)

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. The Completion Times of the Required Actions begin immediately upon failure to meet the Surveillance.

SR 3.0.4

Entry into a MODE or other specified condition in the Applicability of an LCO shall not be made unless the LCO's Surveillances have been met within their specified Frequency. This provision shall not prevent passage through or to MODES or other specified conditions in compliance with Required Actions.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)—T_{avg} > 200°F (Analog)

LCO 3.1.1 SDM shall be ≥ [4.5]% Δk/k.

APPLICABILITY: MODES 3 and 4.

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 is ≥ [4.5]% Δk/k.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 SHUTDOWN MARGIN (SDM)—T_{avg} ≤ 200°F (Analog)

LCO 3.1.2 SDM shall be ≥ [3.0]% Δk/k.

APPLICABILITY: MODE 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 3.1.2.1 Verify SDM is ≥ [3.0]% Δk/k.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Reactivity Balance (Analog)

LCO 3.1.3 The core reactivity balance shall be within ± 1% $\Delta k/k$ of predicted values.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Core reactivity balance not within limit.	A.1	Re-evaluate core design and safety analysis and determine that the reactor core is acceptable for continued operation.	72 hours
	AND		
	A.2	Establish appropriate operating restrictions and SRs.	72 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	----------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% $\Delta k/k$ 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

3.1.4 Moderator Temperature Coefficient (MTC) (Analog)

LCO 3.1.4 The MTC shall be maintained within the limits specified in the COLR. The maximum positive limit shall be that specified in Figure 3.1.4-1.

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 3.1.4.1	----------NOTE---------- This Surveillance is not required to be performed prior to entry into MODE 2. ---------- Verify MTC is within the upper limits specified in the COLR.	Prior to entering MODE 1 after each fuel loading

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	----------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 3.1.4.2 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 $\frac{2}{3}$ of expected core burnup

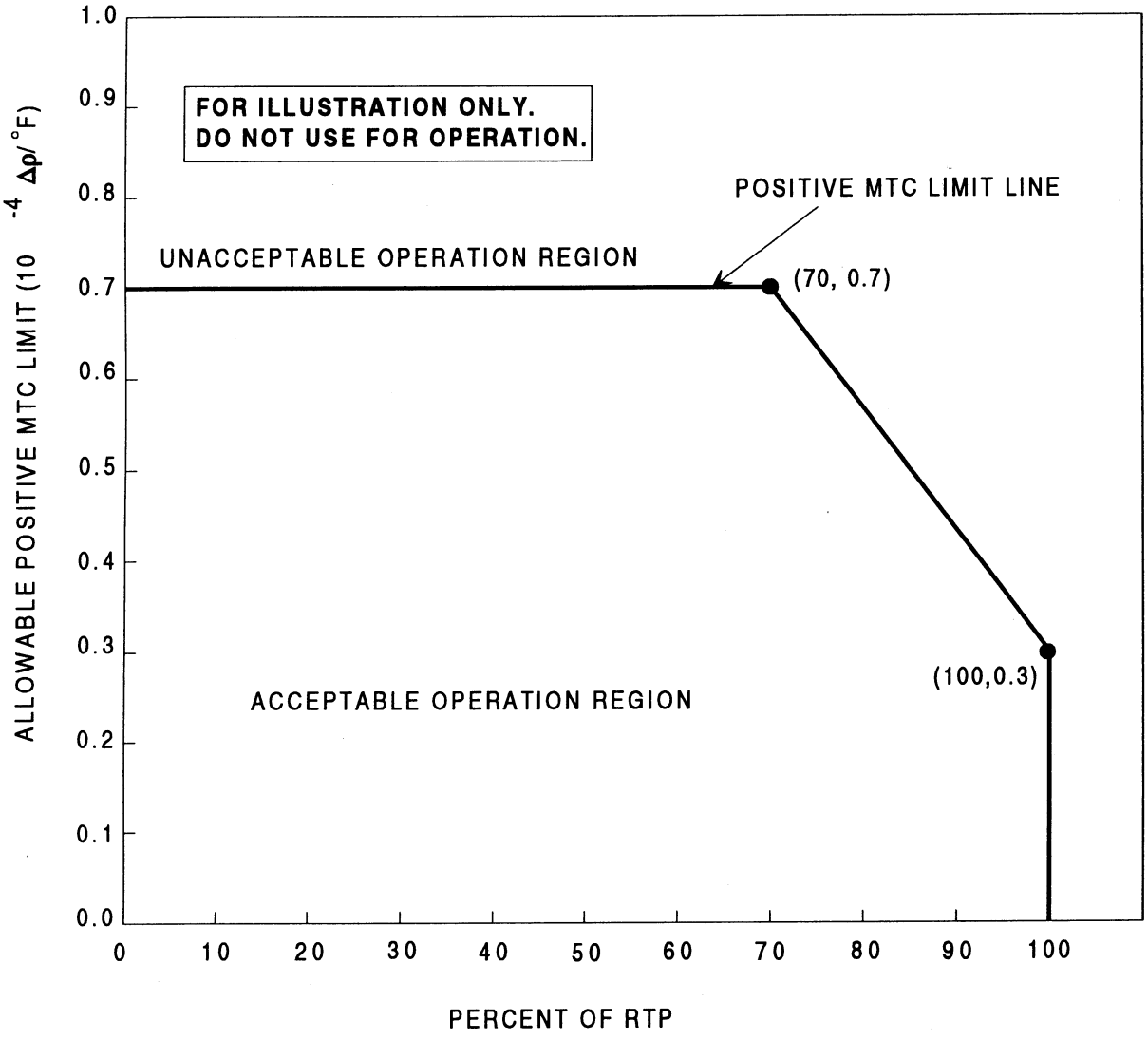

Figure 3.1.4-1 (page 1 of 1)
Allowable Positive MTC Limit

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Control Element Assembly (CEA) Alignment (Analog)

LCO 3.1.5 All CEAs shall be OPERABLE and 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 regulating CEAs trippable and misaligned from its group by > [7 inches] and ≤ [15 inches]. OR One regulating CEA trippable and misaligned from its group by > [15 inches].	A.1 Reduce THERMAL POWER to ≤ 70% RTP. AND A.2.1 Verify SDM is ≥ [4.5]% Δk/k. OR A.2.2 Initiate boration to restore SDM to within limit. AND A.3.1 Restore the misaligned CEA(s) to within [7 inches] (indicated position) of its group. OR	1 hour 1 hour 1 hour 2 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3.2	Align the remainder of the CEAs in the group to within [7 inches] (indicated position) of the misaligned CEA(s) while maintaining the insertion limit of LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits."	2 hours
B. One or more shutdown CEAs trippable and misaligned from its group by > [7 inches] and ≤ [15 inches]. OR One shutdown CEA trippable and misaligned from its group by > [15 inches].	B.1	Reduce THERMAL POWER to ≤ 70% RTP.	1 hour
	AND		
	B.2.1	Verify SDM is ≥ [4.5]% Δk/k.	1 hour
	OR		
	B.2.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	B.3	Restore the misaligned CEA(s) to within [7 inches] (indicated position) of its group.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. CEA motion inhibit inoperable.	C.1	Perform SR 3.1.5.1.	1 hour AND Every 4 hours thereafter
	AND		
	C.2.1	Restore CEA motion inhibit to OPERABLE status.	6 hours
	OR		
	C.2.2	--------NOTE--------- Performance of Required Action C.2.2 is allowed only when not in conflict with Required Action A.1, A.3.1, A.3.2, B.1, B.3, or D.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
D. CEA deviation circuit inoperable.	D.1	Perform SR 3.1.5.1.	1 hour AND Every 4 hours thereafter

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time not met. OR One or more CEAs untrippable. OR Two or more CEAs misaligned by > [15 inches].	E.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify the indicated position of each CEA to be within [7 inches] of all other CEAs in its group.	12 hours
SR 3.1.5.2	Verify that, for each CEA, the OPERABLE CEA position indicator channels, reed switch, and plant computer CEA position indication indicate within [5 inches] of each other.	12 hours
SR 3.1.5.3	Verify the CEA motion inhibit is OPERABLE.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.5.4	Verify the CEA deviation circuit is OPERABLE.	31 days
SR 3.1.5.5	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 3.1.5.6	Perform a CHANNEL FUNCTIONAL TEST of the reed switch position transmitter channel.	18 months
SR 3.1.5.7	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

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

LCO 3.1.6 All shutdown 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 3.1.5.5.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more shutdown CEAs not within limit.	A.1.1	Verify SDM ≥ [4.5]% Δk/k.	1 hour
	OR		
	A.1.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	A.2	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 3.1.6.1	Verify each shutdown CEA is withdrawn ≥ [129] inches.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

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

LCO 3.1.7 The power dependent insertion limit (PDIL) alarm circuit shall be OPERABLE, and the regulating CEA groups shall be limited to the withdrawal sequence and to the insertion limits specified in the COLR.

APPLICABILITY: MODES 1 and 2.

---NOTE---
This LCO is not applicable while performing SR 3.1.5.5 [or during reactor power cutback operation].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Regulating CEA groups inserted beyond the transient insertion limit.	A.1.1 Verify SDM ≥ [4.5]% Δk/k.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.2.1 Restore regulating CEA groups to within limits.	2 hours
	OR	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.2	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
	OR		
	B.2	Restrict increases in THERMAL POWER to ≤ 5% RTP per hour.	15 minutes
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 3.1.7.1.	1 hour AND (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)		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 3.1.7.1	----------NOTE---------- This Surveillance is not required to be performed prior to entry into MODE 2. ---------- Verify each regulating CEA group position is within its insertion limits.	12 hours
SR 3.1.7.2	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 3.1.7.3	Verify PDIL alarm circuit is OPERABLE.	31 days

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 Special Test Exception (STE)—SHUTDOWN MARGIN (SDM) (Analog)

LCO 3.1.8 The SDM requirements of LCO 3.1.1, "SHUTDOWN MARGIN (SDM) T_{avg} > 200°F," and the regulating control element assembly (CEA) insertion limits of LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits," may be suspended for measurement of CEA worth and the 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 3.1.8.1	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	Verify that each CEA not fully inserted is capable of full insertion when tripped from at least the 50% withdrawn position.	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 Exception (STE)—MODES 1 and 2 (Analog)

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

LCO 3.1.4, "Moderator Temperature Coefficient (MTC)";
LCO 3.1.5, "Control Element Assembly (CEA) Alignment";
LCO 3.1.6, "Shutdown Control Element Assembly (CEA) Insertion Limits";
LCO 3.1.7, "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:

a. THERMAL POWER is restricted to the test power plateau, which shall not exceed 85% RTP; and

b. SDM is ≥ [4.5]% $\Delta k/k$.

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. SDM not within limit.	B.1 Initiate boration to restore SDM to within limit. AND B.2 Suspend PHYSICS TESTS.	15 minutes 1 hour
C. Required Action and associated Completion Time not met.	C.1 Suspend PHYSICS TESTS. AND C.2 Be in MODE 3.	1 hour 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.9.1	Verify THERMAL POWER is equal to or less than the test power plateau.	1 hour
SR 3.1.9.2	Verify SDM is ≥ [4.5]% $\Delta k/k$.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)—T_{avg} > 200°F (Digital)

LCO 3.1.1 SDM shall be ≥ [5.0]% Δk/k.

APPLICABILITY: MODES 3 and 4.

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 is ≥ [5.0]% Δk/k.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 SHUTDOWN MARGIN (SDM)—T_{avg} ≤ 200°F (Digital)

LCO 3.1.2 SDM shall be ≥ [2.0]% Δk/k.

APPLICABILITY: MODE 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 3.1.2.1 Verify SDM is ≥ [2.0]% Δk/k.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Reactivity Balance (Digital)

LCO 3.1.3 The core reactivity balance shall be within ± 1% $\Delta k/k$ of predicted values.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Core reactivity balance not within limit.	A.1	Re-evaluate core design and safety analysis and determine that the reactor core is acceptable for continued operation.	72 hours
	AND		
	A.2	Establish appropriate operating restrictions and SRs.	72 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	----------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% $\Delta k/k$ 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

3.1.4 Moderator Temperature Coefficient (MTC) (Digital)

LCO 3.1.4 The 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 ≤ 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 3.1.4.1	----------NOTE---------- This Surveillance is not required to be performed prior to entry into MODE 2. ----------	
	Verify MTC within the upper limit specified in the COLR.	Prior to entering MODE 1 after each fuel loading

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	----------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 3.1.4.2 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 $\frac{2}{3}$ of expected core burnup

SURVEILLANCE REQUIREMENTS (continued)
3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Control Element Assembly (CEA) Alignment (Digital)

LCO 3.1.5 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 regulating CEAs trippable and misaligned from its group by > [7 inches] and ≤ [19 inches]. OR One regulating CEA trippable and misaligned from its group by > [19 inches].	A.1 Reduce THERMAL POWER in accordance with Figure 3.1.5-1. AND A.2.1 Verify SDM is ≥ [5.0]% Δk/k. OR A.2.2 Initiate boration to restore SDM to within limit. AND A.3.1 Restore the misaligned CEA(s) to within [7 inches] (indicated position) of its group. OR	1 hour 1 hour 1 hour 2 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3.2	Align the remainder of the CEAs in the group to within [7 inches] (indicated position) of the misaligned CEA(s) while maintaining the insertion limit of LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits."	2 hours
B. One or more shutdown CEAs trippable and misaligned from its group by > [7 inches] and ≤ [19 inches]. OR One shutdown CEA trippable and misaligned from its group by > [19 inches].	B.1	Reduce THERMAL POWER in accordance with Figure 3.1.5-1.	1 hour
	AND		
	B.2.1	Verify SDM is ≥ [5.0]% Δk/k.	1 hour
	OR		
	B.2.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	B.3	Restore the misaligned CEA(s) to within [7 inches] (indicated position) of its group.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more part length CEAs misaligned from its group by > [7 inches] and ≤ [19 inches]. OR One part length CEA misaligned from its group by > [19 inches].	C.1 Reduce THERMAL POWER in accordance with Figure 3.1.5-1. AND C.2.1 Restore the misaligned CEA(s) to within [7 inches] (indicated position) of its group. OR C.2.2 Align the remainder of the CEAs in the group to within [7 inches] (indicated position) of the misaligned CEA(s).	1 hour 2 hours 2 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met. OR One or more full length CEAs untrippable. OR Two or more CEAs misaligned by > [19 inches].	D.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	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 3.1.5.2	Verify that, for each CEA, its OPERABLE CEA position indicator channels indicate within [5 inches] of each other.	12 hours
SR 3.1.5.3	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 3.1.5.4	Perform a CHANNEL FUNCTIONAL TEST of each reed switch position transmitter channel.	[18 months]
SR 3.1.5.5	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.

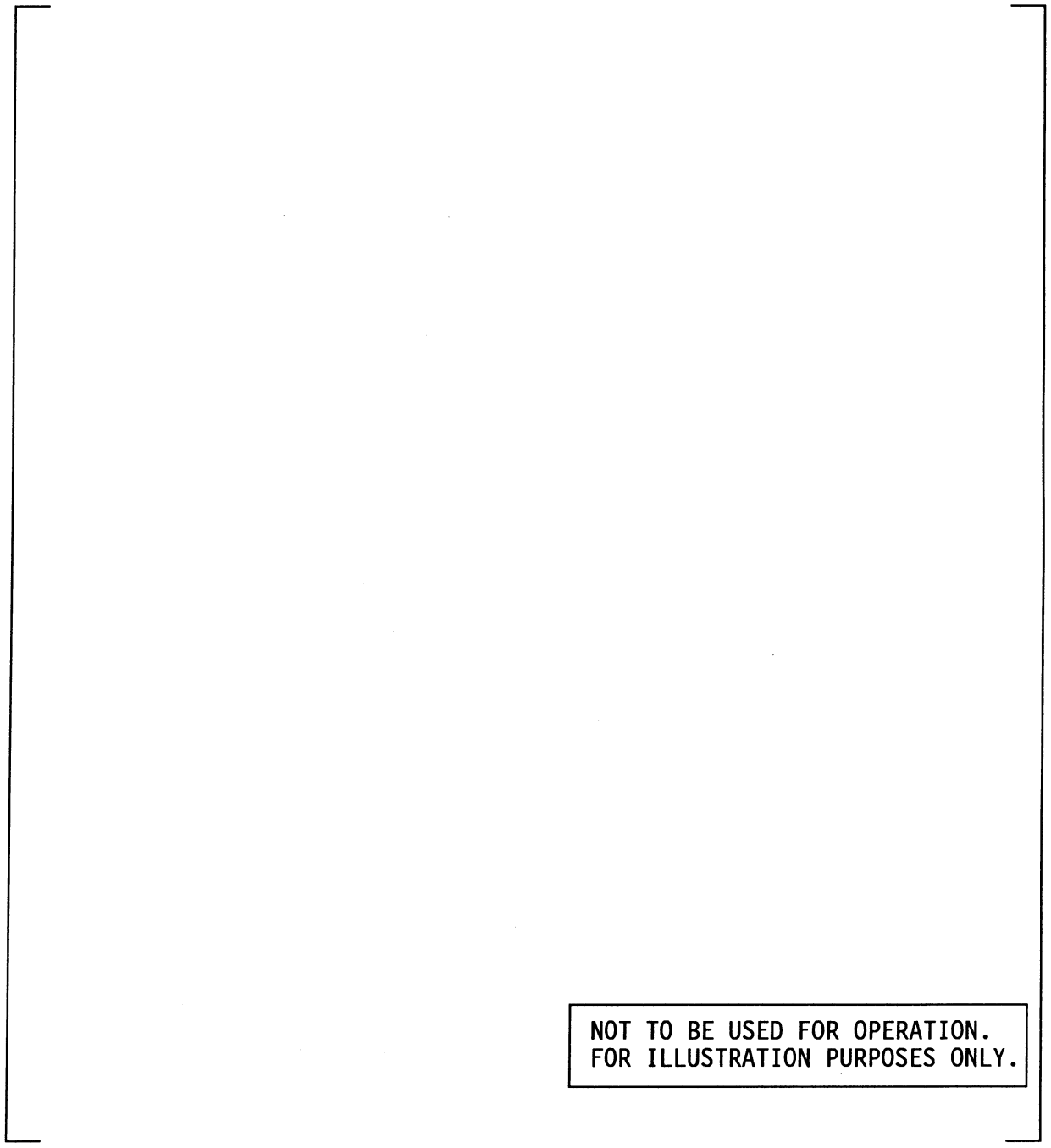

Figure 3.1.5-1 (page 1 of 1)
Required Power Reduction After CEA Deviation

3.1 REACTIVITY CONTROL SYSTEMS

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

LCO 3.1.6 All shutdown 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 3.1.5.3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more shutdown CEAs not within limit.	A.1.1	Verify SDM ≥ [5.0]% Δk/k.	1 hour
	OR		
	A.1.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	A.2	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 3.1.6.1	Verify each shutdown CEA is withdrawn ≥ [145] inches.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Regulating CEA Insertion Limits (Digital)

LCO 3.1.7 The power dependent insertion limit (PDIL) alarm circuit shall be OPERABLE, and

a. With the Core Operating Limit Supervisory System (COLSS) in service, the regulating CEA groups shall be limited to the withdrawal sequence, insertion limits, and associated time restraints specified in the COLR.

b. With COLSS out of service, the regulating CEA groups shall be limited to the short term steady state insertion limit and associated time restraints specified in the COLR.

APPLICABILITY: MODES 1 and 2.

----------NOTE----------
This LCO is not applicable while conducting SR 3.1.5.3 [or during reactor power cutback operation].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Regulating CEA groups inserted beyond the transient insertion limit with COLSS in service.	A.1.1 Verify SDM ≥ [5.0]% Δk/k.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.2.1 Restore regulating CEA groups to within limits.	2 hours
	OR	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.2	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 with COLSS in service.	B.1	Verify short term steady state insertion limits are not exceeded.	15 minutes
	OR		
	B.2	Restrict increases in THERMAL POWER to ≤ 5% RTP per hour.	15 minutes
C. Regulating CEA groups inserted between the long term steady state insertion limit and the transient insertion limit for intervals > 5 effective full power days (EFPD) per 30 EFPD interval or > 14 EFPD per 365 EFPD interval with COLSS in service.	C.1	Restore regulating CEA groups to within limits.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Regulating CEA groups inserted beyond the short term steady state insertion limit with COLSS out of service.	D.1.1 Verify SDM ≥ [5.0]% Δk/k. OR D.1.2 Initiate boration to restore SDM to within limit. AND D.2.1 Restore regulating CEA groups to within limits. OR D.2.2 Reduce THERMAL POWER to less than or equal to the fraction of RTP allowed by CEA group position and short term steady state insertion limit specified in the COLR.	1 hour 1 hour 2 hours 2 hours
E. PDIL alarm circuit inoperable.	E.1 Perform SR 3.1.7.1.	1 hour AND Once per 4 hours thereafter
F. Required Actions and associated Completion Times not met.	F.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	----------NOTE---------- This Surveillance is not required to be performed prior to entry into MODE 2. ---------- Verify each regulating CEA group position is within its insertion limits.	12 hours
SR 3.1.7.2	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 3.1.7.3	Verify PDIL alarm circuit is OPERABLE.	31 days

3.1 REACTIVITY CONTROL SYSTEMS

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

LCO 3.1.8 The part length CEA groups shall be limited to the insertion limits specified in the COLR.

APPLICABILITY: MODE 1 > 20% RTP.

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

ACTIONS

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

(continued)

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 3.1.8.1	Verify part length CEA group position.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.9 Special Test Exception (STE)—SHUTDOWN MARGIN (SDM) (Digital)

LCO 3.1.9 The SDM requirements of LCO 3.1.1, "SHUTDOWN MARGIN (SDM)—T_{avg} > 200°F," and the regulating control element assembly (CEA) insertion limits of LCO 3.1.7, "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 3.1.9.1	Verify that the position of each CEA not fully inserted is within the acceptance criteria for available negative reactivity addition.	2 hours
SR 3.1.9.2	Verify each full length CEA not fully inserted is capable of full insertion when tripped from at least the 50% withdrawn position.	Within [7 days] prior to reducing SDM to less than the limits of LCO 3.1.1

3.1 REACTIVITY CONTROL SYSTEMS

3.1.10 Special Test Exceptions (STE)—MODES 1 and 2 (Digital)

LCO 3.1.10 During performance of PHYSICS TESTS, the requirements of:

LCO 3.1.4, "Moderator Temperature Coefficient (MTC)";
LCO 3.1.5, "Control Element Assembly (CEA) Alignment";
LCO 3.1.6, "Shutdown Control Element Assembly (CEA) Insertion Limits";
LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits";
LCO 3.1.8, "Part Length CEA Insertion Limits";
LCO 3.2.2, "Planar Radial Peaking Factors"; and
LCO 3.2.3, "AZIMUTHAL POWER TILT (Tq)"

may be suspended, provided:

a. THERMAL POWER is restricted to the test power plateau, which shall not exceed 85% RTP; and

b. SDM is ≥ [5.0]% $\Delta k/k$.

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. SDM is not within limit.	B.1 Initiate boration to restore SDM to within limit. AND B.2 Suspend PHYSICS TESTS.	15 minutes 1 hour
C. Required Action and associated Completion Time not met.	C.1 Suspend PHYSICS TESTS. AND C.2 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.10.1	Verify THERMAL POWER equal to or less than the test power plateau.	1 hour
SR 3.1.10.2	Verify SDM is ≥ [5.0]% $\Delta k/k$.	24 hours

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 of Figure 3.2.1-1 of the COLR, as indicated by four or more coincident incore channels. OR LHR, as determined by the Excore Detector Monitoring System, exceeds the limits as indicated by the ASI outside the power dependent control limits as specified in Figure 3.2.1-2 of 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 applicable when the Excore Detector Monitoring System is being used to determine LHR. ---------- Verify ASI alarm setpoints are within the limits specified in Figure 3.2.2-2 (ASI Operating Limits) in the COLR.	31 days
SR 3.2.1.2	----------NOTES---------- 1. Only applicable 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.2.1.3	----------NOTES---------- 1. Only applicable 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

3.2.2 Total Planar Radial Peaking Factor (F^T_{xy}) (Analog)

LCO 3.2.2 The calculated value of F^T_{xy} 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^T_{xy} not within limits.	A.1 Reduce THERMAL POWER to bring the combination of THERMAL POWER and F^T_{xy} to within the limits specified in the COLR. AND A.2 Withdraw the control element assemblies (CEAs) to or beyond the long term steady state insertion limits of LCO 3.1.7, "Regulating CEAs," as specified in the COLR.	6 hours 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 AND 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

3.2.3 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.	6 hours
	AND		
	A.2	Withdraw the control element assemblies (CEAs) to or beyond the long term steady state insertion limits of LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits," as specified in the COLR.	6 hours
	AND		6 hours
	A.3	Establish a revised upper THERMAL POWER limit as specified in the COLR.	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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. ---------- Verify the value of F_r^T.	Prior to operation > 70% RTP after each fuel loading AND 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

(continued)

SURVEILLANCE	FREQUENCY
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

3.2.4 AZIMUTHAL POWER TILT (T_q) (Analog)

LCO 3.2.4 T_q shall be ≤ [0.03].

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

ACTIONS

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

(continued)

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^T_{xy} and F^T_r 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].	Prior to increasing THERMAL POWER ------NOTE----- 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 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

3.2.5 AXIAL SHAPE INDEX (ASI) (Analog)

LCO 3.2.5 The ASI shall be maintained within the limits specified in Figure 3.2.5-1 of 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

3.2.1 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 Restore LHR to within limits.	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 3.2.1.1	----------NOTE---------- Only applicable 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 ≤ [13.9 kW/ft].	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 Planar Radial Peaking Factors (F_{xy}) (Digital)

LCO 3.2.2 The measured Planar Radial Peaking Factors (F^M_{xy}) shall be equal to or less than the Planar Radial Peaking Factors (F^C_{xy}). (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. $F^M_{xy} > F^C_{xy}$.	A.1.1	Adjust addressable CPC constants to increase the multiplier applied to planar radial peaking by a factor $\geq F^M_{xy}/F^C_{xy}$.	6 hours
		AND	
	A.1.2	Maintain a margin to the COLSS operating limits of $[(F^M_{xy}/F^C_{xy})-1.0]$ x 100%.	6 hours
	OR		
	A.2	Adjust the affected F^C_{xy} used in the COLSS and CPCs to a value greater than or equal to the measured F^M_{xy}.	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^M_{xy} obtained using the Incore Detector System is equal to or less than the value of F^C_{xy} used in the COLSS and CPCs.	Once after each fuel loading with THERMAL POWER > 40% RTP but prior to operations above 70% RTP AND 31 EFPD thereafter

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 ≤ [0.10].	A.1 Restore measured T_q. OR 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 ≤ [0.10]. ---------- B.1 Reduce THERMAL POWER to ≤ 50% RTP. AND	 4 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Reduce Linear Power Level—High trip setpoints to ≤ 55% RTP. AND B.3 Restore the measured T_q to less than the T_q allowance used in the CPCs.	16 hours 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 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	----------NOTES---------- Only applicable 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
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 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 13.0% RTP (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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. DNBR outside the region of acceptable operation when COLSS is out of service.	B.1 Restore DNBR to within limit.	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 applicable 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) (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: MODES 1 and 2.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each RPS trip or bypass removal 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. AND A.2.1 Restore channel to OPERABLE status. OR A.2.2 Place affected trip unit in trip.	1 hour [48] hours 48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
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.	1 hour
	AND		
	B.2	Restore one trip unit to OPERABLE status.	[48] hours
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.	24 hours
	OR		
	C.2	Restrict THERMAL POWER to ≤ 90% of the maximum allowed THERMAL POWER level.	24 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		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	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.	[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 E.2.1 Place one affected trip unit in bypass and place the other in trip for each affected trip Function. AND E.2.2 Restore one bypass channel and the associated trip unit to OPERABLE status for each affected trip Function.	 1 hour 1 hour [48] hours
F. Required Action and associated Completion Time not met.	F.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	----------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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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
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	Perform a CHANNEL CALIBRATION of each RPS instrument channel, including bypass removal functions.	[18] months
SR 3.3.1.9	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	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Variable High Power Trip	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]	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]	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	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	[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]	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
7a. Steam Generator A Level – Low	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	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.8 SR 3.3.1.9	≥ [24.7]%

(continued)

(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 2 of 2)
Reactor Protective System Instrumentation

	FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
8.	Axial Power Distribution – High(d)	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)	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)	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)(d)	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 may be bypassed when THERMAL POWER is < [15]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [15]% RTP.

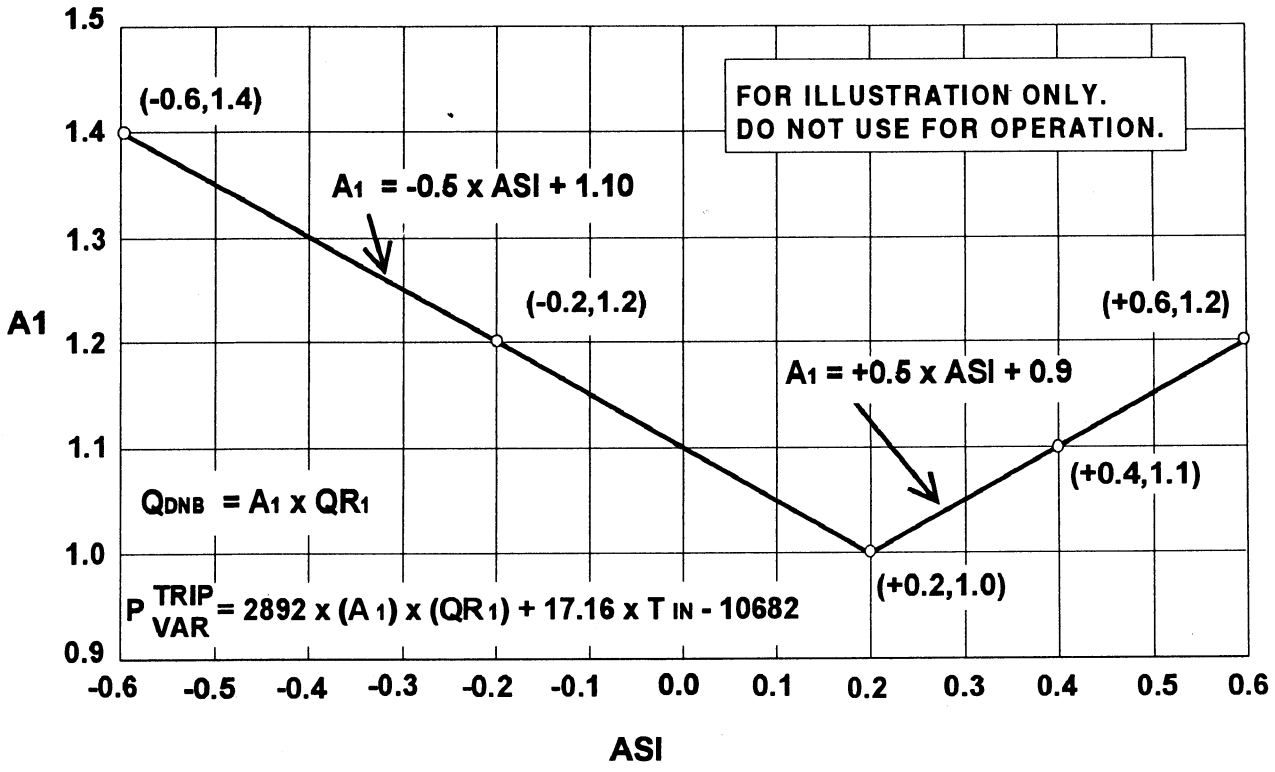

Figure 3.3.1-1 (page 1 of 1)
Thermal Margin/Low Pressure Trip Setpoint: ASI vs A_1

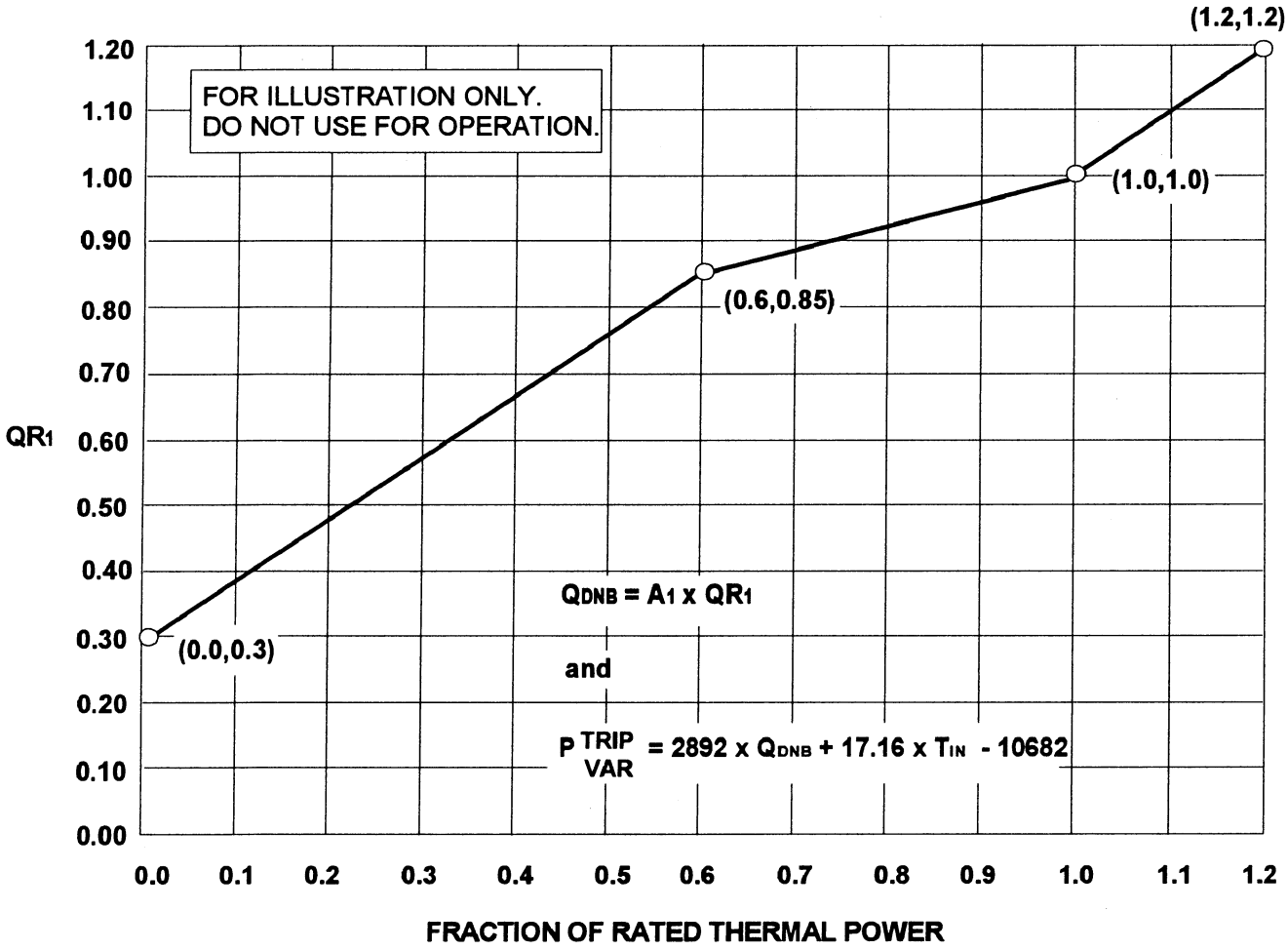

Figure 3.3.1-2 (page 1 of 1)
Thermal Margin/Low Pressure Trip Setpoint: Fraction of RTP vs QR 1

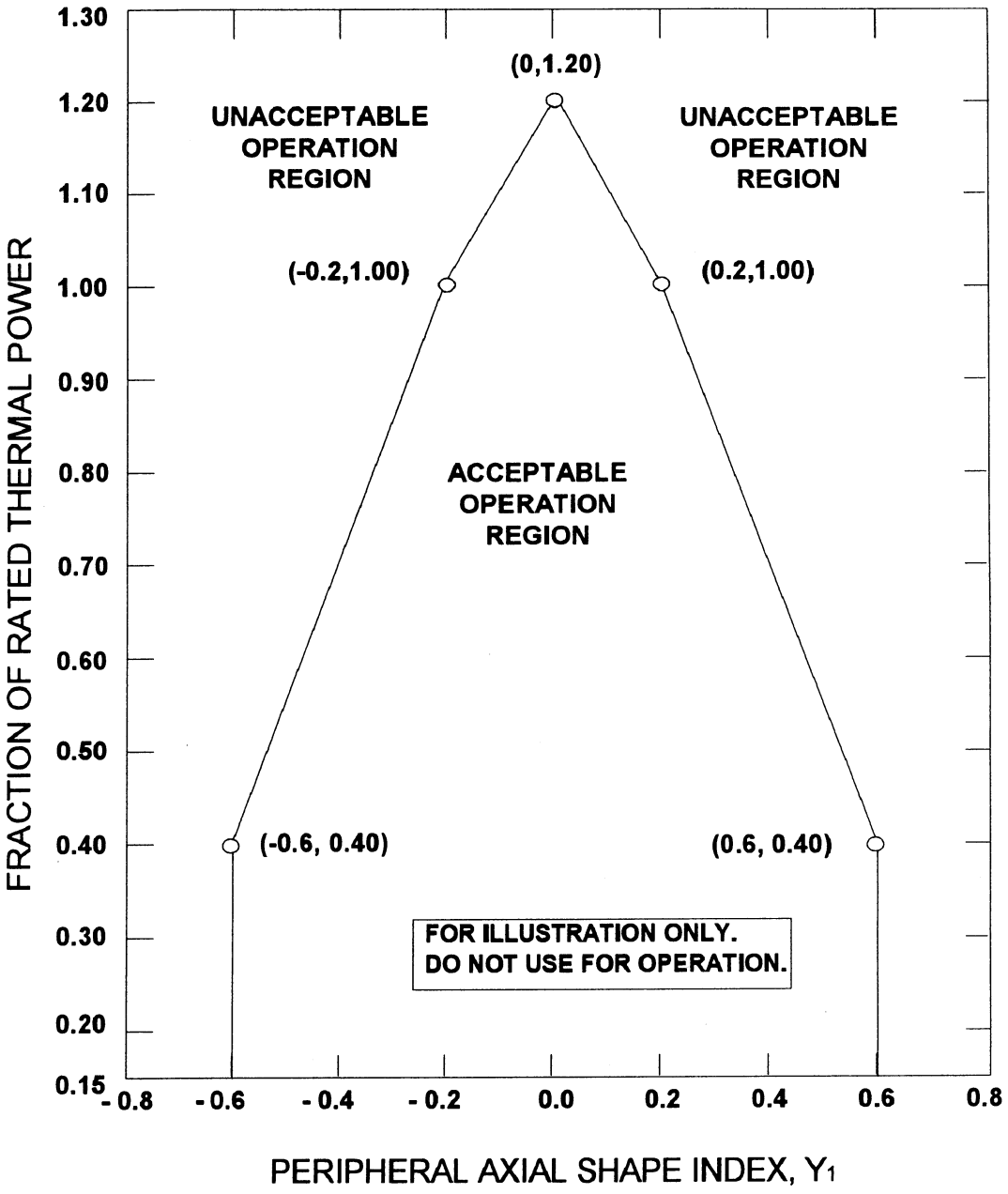

Figure 3.3.1-3 (page 1 of 1)
Peripheral Axial Shape Index, Y_1 vs Fraction of RTP

3.3 INSTRUMENTATION

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

LCO 3.3.2 Four Power Rate of Change—High RPS trip units and associated instrument channels shall be OPERABLE, with an Allowable Value of ≤ [2.6] dpm.

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

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

ACTIONS

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

(continued)

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.	1 hour
	AND	
	B.2 Restore one trip unit to OPERABLE status.	48 hours
C. One automatic bypass removal channel inoperable.	C.1 Disable bypass channel.	1 hour
	OR	
	C.2.1 Place affected trip unit in bypass or trip.	1 hour
	AND	
	C.2.2.1 Restore bypass removal channel and affected trip unit to OPERABLE status.	[48] hours
	OR	
	C.2.2.2 Place affected trip units in trip.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two automatic bypass removal channels inoperable.	----------NOTE---------- LCO 3.0.4 is not applicable. ----------	
	D.1 Disable bypass channels.	1 hour
	OR	
	D.2.1 Place one affected trip unit in bypass and place the other in trip.	1 hour
	AND	
	D.2.2 Restore one bypass channel and the associated trip unit to OPERABLE status.	[48] hours
E. Required Action and associated Completion Time not met.	E.1 Open all RTCBs.	6 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1	Perform a CHANNEL CHECK of each wide range power channel.	12 hours
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.	[18] months

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. ---------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 Matrix Logic channel inoperable.	A.1 Restore channel to OPERABLE status.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. ---------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1 Open the affected RTCBs.	1 hour
C. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. ---------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1 Open all RTCBs.	48 hours
D. Two channels of RTCBs or Initiation Logic affecting the same trip leg inoperable.	D.1 Open the affected RTCBs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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 RPS Logic channel and RTCB channel.	[92] days
SR 3.3.3.2	Perform a CHANNEL FUNCTIONAL TEST on each RPS Manual Trip channel.	Once within 7 days prior to each reactor startup
SR 3.3.3.3	Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB.	[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 trip or bypass removal 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. AND B.2.1 Restore channel to OPERABLE status. OR B.2.2 Place affected trip unit in trip.	1 hour [48] hours 48 hours

(continued)

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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	
	E.2.1 Place one affected trip unit in bypass and place the other in trip for each affected ESFAS Function.	1 hour
	AND	
	E.2.2 Restore one bypass 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.	F.1 Be in MODE 3.	6 hours
	AND	
	F.2 Be in MODE 4.	[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
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[(c)]			
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]
4. Main Steam Isolation Signal			
a. Steam Generator Pressure – Low[(b)]	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

(continued)

(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) 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.

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

(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 associate valves isolated by the MSIS Function are closed and [de-activated]].

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

FUNCTION	MODES	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
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

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. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND 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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. 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

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
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		
	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
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

3.3.7 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 CORE ALTERATIONS,
During movement of 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.2.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2.2	Suspend movement of 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	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued) More than one radiation monitor channel inoperable. OR Required Action and associated Completion Time of Condition A not met.	B.2 Enter applicable Conditions and Required Actions for affected valves of LCO 3.6.3, "Containment Isolation Valves," made inoperable by isolation instrumentation.	Immediately

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 Allowable Value is ≤ [220 mR/hr].	[92] days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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

3.3.8 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 CORE ALTERATIONS,
During movement of 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 <u>AND</u> B.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

(continued)

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 CORE ALTERATIONS, or during movement of 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 irradiated fuel assemblies.	Immediately
	AND		
	C.2.2	Suspend positive reactivity additions.	Immediately
	AND		
	C.2.3	Suspend CORE ALTERATIONS.	Immediately

SURVEILLANCE REQUIREMENTS

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

(continued)

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 Allowable Value is ≤ [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

3.3.9 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. AND	1 hour
	B.2.1 Restore the channel to OPERABLE status. OR	48 hours
	B.2.2 Place the channel in trip.	48 hours
C. Two CVCS isolation instrument channels inoperable.	C.1 Place one channel in bypass and place the other channel in trip. AND	1 hour

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Restore one channel to OPERABLE status.	48 hours
D. 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 ≤ .5 psig Letdown Heat Exchanger Room Pressure—High ≤ .5 psig	31 days
SR 3.3.9.3	Perform a CHANNEL CALIBRATION on each CVCS isolation pressure indicating channel.	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. AND 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

3.3.11 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 5.9.2.c.	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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two hydrogen monitor channels inoperable.	D.1 Restore one hydrogen monitor channel to OPERABLE status.	72 hours
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. AND 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 5.9.2.c.	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	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 D.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.	Containment Isolation Valve Position	1 per valve[(a)]	F
9.	Containment Area Radiation (high range)	2	[G]
10.	Containment Hydrogen Monitors	2	F
11.	Pressurizer Level	2	F
12.	Steam Generator Water Level (wide range)	2 per steam generator	F
13.	Condensate Storage Tank Level	2[(b)]	F
14.	Core Exit Temperature – Quadrant [1]	2[(b)]	F
15.	Core Exit Temperature – Quadrant [2]	2[(b)]	F
16.	Core Exit Temperature – Quadrant [3]	2[(b)]	F
17.	Core Exit Temperature – Quadrant [4]	2[(b)]	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) A channel consists of two or more core exit thermocouples.

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 in Table 3.3.12-1 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 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. AND B.2 Be in MODE 4.	6 hours [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]
SR 3.3.12.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] months
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]

Table 3.3.12-1 (page 1 of 1)
Remote Shutdown System Instrumentation and Controls

NOTE
This table is for illustration purposes only. It does not attempt to encompass every Function used at every unit, but does contain the types of Functions commonly found.

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF DIVISIONS
1. Reactivity Control	
a. Log Power Neutron Flux	[1]
b. Source Range Neutron Flux	[1]
c. Reactor Trip Circuit Breaker Position	[1 per trip breaker]
d. Manual Reactor Trip	[2]
2. Reactor Coolant System Pressure Control	
a. Pressurizer Pressure or RCS Wide Range Pressure	[1]
b. Pressurizer Power Operated Relief Valve Control and Block Valve Control	[1, controls must be for power operated relief valve and block valves on same line]
3. Decay Heat Removal via Steam Generators	
a. Reactor Coolant Hot Leg Temperature	[1 per loop]
b. Reactor Coolant Cold Leg Temperature	[1 per loop]
c. Auxiliary Feedwater Controls	[1]
d. Steam Generator Pressure	[1 per steam generator]
e. Steam Generator Level or Auxiliary Feedwater Flow	[1 per steam generator]
f. Condensate Storage Tank Level	[1]
4. Reactor Coolant System Inventory Control	
a. Pressurizer Level	[1]
b. Reactor Coolant Charging Pump Controls	[1]

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 Suspend all operations involving positive reactivity additions. AND	Immediately
	A.2 Perform SDM verification in accordance with SR 3.1.1.1, if T_{avg} > 200°F, or SR 3.1.2.1, 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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

3.3 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

----------NOTES----------
1. Separate Condition entry is allowed for each RPS Function.

2. If a channel is placed in bypass, continued operation with the channel in the bypassed condition for the Completion Time specified by Required Action A.2 or C.2.2 shall be reviewed in accordance with Specification 5.5.1.2.e.

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. AND A.2 Restore channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
B. One or more Functions with two automatic RPS trip channels inoperable.	B.1 --------NOTE-------- LCO 3.0.4 is not applicable. ---------- Place one channel in bypass and the other in trip.	 1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with one automatic bypass removal channel inoperable.	C.1 Disable bypass channel. OR	1 hour
	C.2.1 Place affected automatic trip channel in bypass or trip. AND	1 hour
	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. 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	1 hour
	D.2 Place one affected automatic trip channel in bypass and place the other in trip.	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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 autorestart 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

(continued)

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 THERMAL POWER below 1E-4% RTP 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

(continued)

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, determine the shape annealing matrix elements to be used by the CPCs.	Once after each refueling prior to exceeding 70% RTP

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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
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[b]	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]% RTP
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
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

(continued)

(a) Trip may be bypassed when THERMAL POWER is > [1E-4]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≤ [1E-4]% RTP. Trip may be manually bypassed during physics testing pursuant to LCO 3.4.17, "RCS Loops – Test Exceptions."

(b) When any RTCB is closed.

(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. 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.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
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 – 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. 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]

(continued)

(d) Trip may be bypassed when THERMAL POWER is < [1E-4]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [1E-4]% RTP. During testing pursuant to LCO 3.4.17, trip may be bypassed below 5% RTP. Bypass shall be automatically removed when THERMAL POWER is > 5% RTP.

(e) Trip may be bypassed when THERMAL POWER is < [55]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [55]% 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. 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 3.3.1.6 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
15. 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 3.3.1.6 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) Trip may be bypassed when THERMAL POWER is < [1E-4]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [1E-4]% RTP. During testing pursuant to LCO 3.4.17, trip may be bypassed below 5% RTP. Bypass shall be automatically removed when THERMAL POWER is > 5% RTP.

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. Trip channels shall have an Allowable Value of ≤ [.93]% RTP.

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

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

ACTIONS

----------NOTE----------
If a channel is placed in bypass, continued operation with the channel in the bypassed condition for the Completion Time specified by Required Action A.2 or C.2.2 shall be reviewed in accordance with Specification 5.5.1.2.e.

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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
C. One automatic bypass removal channel inoperable.	C.1 Disable bypass channel. OR 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 1 hour 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. OR	1 hour

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	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
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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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.	[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 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 3.1.5.1. 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 (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	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 3.1.5.3 and SR 3.1.5.4 [or for control, when CEA group #6 may be inserted to a maximum of 127.5 inches].	4 hours
	AND		
	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
	AND		
	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
	AND		
	B.5	Perform SR 3.1.5.1.	Once per 4 hours

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform a CHANNEL CHECK.	12 hours
SR 3.3.3.2	Check the CEAC autorestart 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 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. ---------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 Matrix Logic channel inoperable.	A.1 Restore channel to OPERABLE status.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. ---------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	B.1 Open the affected RTCBs.	1 hour
C. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. ---------- One channel of Manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1 Open all RTCBs.	48 hours
D. Two channels of RTCBs or Initiation Logic affecting the same trip leg inoperable.	D.1 Open the affected RTCBs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, B, or D not met. OR 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. AND 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 RPS Logic channel and RTCB channel.	[92] days
SR 3.3.4.2	Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB.	[18] months
SR 3.3.4.3	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) 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

----------NOTES----------
1. Separate Condition entry is allowed for each ESFAS Function.

2. If a channel is placed in bypass, continued operation with the channel in the bypassed condition for the Completion Time specified by Required Action A.2 or C.2.2 shall be reviewed in accordance with Specification 5.5.1.2.e.

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
	AND		
	A.2	Restore channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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. OR	1 hour
	C.2.1 Place affected automatic trip channel in bypass or trip. AND	1 hour
	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. 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	1 hour

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	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 AND E.2	Be in MODE 3. 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, including bypass removal functions.	92 days
SR 3.3.5.3	Perform a CHANNEL CALIBRATION of each ESFAS channel, including bypass removal functions.	[18] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 1)
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]		≥ [1763] psia
2. Containment Spray Actuation Signal		
a. Containment Pressure – High High	1,2,3	≤ [16.83] psia
b. Automatic SIAS		NA
3. Containment Isolation Actuation Signal		
a. Containment Pressure – High	1,2,3	≤ [3.14] psig
b. Pressurizer Pressure – Low[b]		≥ [1763] psia
4. Main Steam Isolation Signal		
a. Steam Generator Pressure – Low[c]	1,2[d],3[d]	≥ [711] psig
b. Containment Pressure – High		≤ [3.14] psig
5. Recirculation Actuation Signal		
a. Refueling Water Storage Tank Level – Low	1,2,3	[≥ 17.73 and ≤ 19.27]%
6. Emergency Feedwater Actuation Signal SG #1 (EFAS-1)		
a. Steam Generator Level – Low	1,2,3	≥ [24.23]%
b. SG Pressure Difference – High		≤ [66.25] psid
[c. Steam Generator Pressure – Low		≥ [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		≤ [66.25] psid
[c. Steam Generator Pressure – Low		≥ [711] psig]

(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].

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more Functions with two Initiation Logic channels affecting the same trip leg inoperable.	C.1	Open at least one contact in the affected trip leg of both ESFAS Actuation Logics.	Immediately
	AND		
	C.2	Restore channels to OPERABLE status.	48 hours
D. One or more Functions with one Actuation Logic channel inoperable.	D.1	--------NOTE-------- One channel of Actuation Logic may be bypassed for up to 1 hour for Surveillances, provided the other channel is OPERABLE. ----------	
		Restore inoperable channel to OPERABLE status.	48 hours
E. 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.	6 hours
	AND		
	E.2	Be in MODE 4.	[12] hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. 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

(continued)

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 1)
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
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

(a) Automatic SIAS also initiates CCAS.

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

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

----------NOTES----------
1. Separate Condition entry is allowed for each Function.

2. If a channel is placed in bypass, continued operation with the channel in the bypassed condition for the Completion Time specified by Required Action A.2 shall be reviewed in accordance with Specification 5.5.1.2.e.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel per DG inoperable.	A.1 Place channel in bypass or trip. AND	1 hour
	A.2 Restore channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
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		
	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
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 Containment Purge Isolation Signal (CPIS) (Digital)

LCO 3.3.8 One CPIS channel shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. CPIS Manual Trip, Actuation Logic, or one or more required channels of radiation monitors inoperable in MODES 1, 2, 3, and 4.	A.1	Enter applicable Conditions and Required Actions for affected valves of LCO 3.6.3, "Containment Isolation Valves," made inoperable by CPIS instrumentation.	Immediately
B. Required Action and associated Completion Time not met in MODE 1, 2, 3, or 4.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. CPIS Manual Trip, Actuation Logic, or one or more required channels of radiation monitors inoperable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment.	C.1 Place and maintain containment purge and exhaust valves in closed position. OR C.2.1 Suspend CORE ALTERATIONS. AND C.2.2 Suspend movement of irradiated fuel assemblies in containment.	Immediately Immediately 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.3	----------NOTE---------- This SR is applicable 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
SR 3.3.8.4	----------NOTE---------- This SR is only applicable 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 Control Room Isolation Signal (CRIS) (Digital)

LCO 3.3.9 One CRIS channel shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, [and] 4[, 5, and 6],
During CORE ALTERATIONS,
During movement of 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 AND B.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

(continued)

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], during CORE ALTERATIONS, or during movement of 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 irradiated fuel assemblies.	Immediately
	AND		
	C.2.2	Suspend positive reactivity additions.	Immediately
	AND		
	C.2.3	Suspend CORE ALTERATIONS.	Immediately

SURVEILLANCE REQUIREMENTS

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

(continued)

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 ≤ [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 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 irradiated fuel in the fuel building.

ACTIONS

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 AND B.2	Be in MODE 3. 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 irradiated fuel assemblies.	C.1 OR C.2	Place one OPERABLE FBACS train in operation. Suspend movement of 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 (Digital)

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

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTES----------
1. LCO 3.0.4 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 5.9.2.c.	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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two hydrogen monitor channels inoperable.	D.1 Restore one hydrogen monitor channel to OPERABLE status.	72 hours
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. AND 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 5.9.2.c.	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	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 D.1
1.	[Wide Range] 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.	Containment Isolation Valve Position	1 per valve[(a)]	F
9.	Containment Area Radiation (high range)	2	[G]
10.	Containment Hydrogen Monitors	2	F
11.	Pressurizer 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[(b)]	F
15.	Core Exit Temperature – Quadrant [2]	2[(b)]	F
16.	Core Exit Temperature – Quadrant [3]	2[(b)]	F
17.	Core Exit Temperature – Quadrant [4]	2[(b)]	F
18.	Emergency 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) A channel consists of two or more core exit thermocouples.

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 (Digital)

LCO 3.3.12 The Remote Shutdown System Functions in Table 3.3.12-1 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 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. AND B.2 Be in MODE 4.	6 hours [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
SR 3.3.12.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] months
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

Table 3.3.12-1 (page 1 of 1)
Remote Shutdown System Instrumentation and Controls

NOTE
This table is for illustration purposes only. It does not attempt to encompass every Function used at every unit, but does contain the types of Functions commonly found.

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF DIVISIONS
1. Reactivity Control	
a. Log Power Neutron Flux	[1]
b. Source Range Neutron Flux	[1]
c. Reactor Trip Circuit Breaker Position	[1 per trip breaker]
d. Manual Reactor Trip	[4]
2. Reactor Coolant System Pressure Control	
a. Pressurizer Pressure or RCS Wide Range Pressure	[1]
b. Pressurizer Power Operated Relief Valve Control and Block Valve Control	[1, controls must be for power operated relief valve and block valves on same line]
3. Decay Heat Removal (via Steam Generators)	
a. Reactor Coolant Hot Leg Temperature	[1 per loop]
b. Reactor Coolant Cold Leg Temperature	[1 per loop]
c. Auxiliary Feedwater Controls	[1]
d. Steam Generator Pressure	[1 per steam generator]
e. Steam Generator Level or Auxiliary Feedwater Flow	[1 per steam generator]
f. Condensate Storage Tank Level	[1]
4. Reactor Coolant System Inventory Control	
a. Pressurizer Level	[1]
b. Reactor Coolant Charging Pump Controls	[1]

3.3 INSTRUMENTATION

3.3.13 [Logarithmic] Power Monitoring Channels (Digital)

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Suspend all operations involving positive reactivity additions. AND A.2 Perform SDM verification in accordance with SR 3.1.1.1, if T_{avg} > 200°F, or SR 3.1.2.1, if T_{avg} ≤ 200°F.	Immediately 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) ≥ [535]°F and ≤ [558]°F for < [70]% RTP, or ≥ [544]°F and ≤ [588]°F for ≥ [70]% RTP; and

c. RCS total flow rate ≥ [148 E6] lb/hour and ≤ [177.6 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

(continued)

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 ≥ [535]°F and ≤ [558]°F for < [70]% RTP or ≥ [544]°F and ≤ [558]°F for ≥ [70]% RTP.	12 hours
SR 3.4.1.3	----------NOTE---------- Required to be met in MODE 1 with all RCPs running. ---------- Verify RCS total flow rate ≥ [148 E6] lb/hour and ≤ [177.6 E6] lb/hour.	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
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 ≥ [148 E6] lb/hour and ≤ [177.6 E6] lb/hour.	[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 ≥ [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} ≥ 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 3.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop ≥ [520]°F.	Within 15 minutes prior to achieving criticality AND 30 minutes

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.	30 minutes
	AND		
	A.2	Determine RCS is acceptable for continued operation.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5 with RCS pressure < [500] psig.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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

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] RCS loops shall be OPERABLE and one RCS loop shall be in operation.

---NOTE---
All reactor coolant pumps may be de-energized for ≤ 1 hour per 8 hour period, provided:

a. No operations are permitted that would cause reduction of the RCS boron concentration; 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 required RCS loop inoperable.	A.1 Restore required 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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. No RCS loop OPERABLE. OR No RCS loop in operation.	C.1 Suspend all operations involving a reduction of RCS boron concentration. AND C.2 Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify required 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	Verify correct breaker alignment and indicated power available to the required pump that is not in operation.	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 at least one loop or train shall be in operation.

---NOTES---

1. All reactor coolant pumps (RCPs) and SDC pumps may be de-energized for ≤ 1 hour per 8 hour period, provided:

   a. No operations are permitted that would cause reduction of the RCS boron concentration; 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 RCS loop inoperable. AND Two SDC trains inoperable.	A.1 Initiate action to restore a second loop or train to OPERABLE status.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required SDC train inoperable. AND Two required RCS loops inoperable.	B.1 Be in MODE 5.	24 hours
C. Required RCS loop or SDC train inoperable. OR No RCS loop or SDC train in operation.	C.1 Suspend all operations involving reduction of RCS boron concentration. AND C.2 Initiate action to restore one loop or train to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify one 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 ≥ [25]%.	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.6.3	Verify correct breaker alignment and indicated power available to the required pump that is not in operation.	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. 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 de-energized for ≤ 1 hour per 8 hour period provided:

   a. No operations are permitted that would cause reduction of the RCS boron concentration; and

   b. Core outlet temperature is maintained at least 10°F below saturation temperature.

2. One required 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 one or more of the RCS cold leg temperatures ≤ [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. All SDC trains may be removed from 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 SDC train inoperable. AND Any SG with secondary side water level not within limit.	A.1 Initiate action to restore a second SDC train to OPERABLE status. OR A.2 Initiate action to restore SG secondary side water levels to within limits.	Immediately Immediately
B. Required SDC train inoperable. OR No SDC train in operation.	B.1 Suspend all operations involving reduction in RCS boron concentration. AND B.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 one 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	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops—MODE 5, Loops Not Filled

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

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

1. All SDC pumps may be de-energized 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 a reduction of the RCS boron concentration; 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 SDC train inoperable.	A.1 Initiate action to restore SDC train to OPERABLE status.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required SDC trains inoperable. OR No SDC train in operation.	B.1 Suspend all operations involving reduction of RCS boron concentration. AND 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 one SDC train is in operation.	12 hours
SR 3.4.8.2	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	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.	6 hours
	AND		
	A.2	Be in MODE 4.	[12] hours
B. One required group of pressurizer heaters inoperable.	B.1	Restore required group of pressurizer heaters to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition B not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 4.	[12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level is < [60]%.	12 hours
SR 3.4.9.2	Verify capacity of each required group of pressurizer heaters ≥ [150] kW.	92 days
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. OR Two [or more] pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 4 with all RCS cold leg temperatures ≤ [285]°F.	6 hours [12] 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.

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One block valve inoperable.	C.1	Place associated PORV in manual control.	1 hour
	AND		
	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
	AND		
	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
	AND		
	E.2	Remove power from associated block valves.	1 hour
	AND		
	E.3	Be in MODE 3.	6 hours
	AND		
	E.4	Be in MODE 4.	[12] hours
F. More than one block valve inoperable.	F.1	Place associated PORVs in manual control.	1 hour
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. (continued)	F.2 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. AND G.2 Be in MODE 4.	6 hours [12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	----------NOTE---------- Not required to be performed with block valve closed in accordance with the Required Actions of this LCO. ---------- Perform a complete cycle of each block valve.	[92 days]
SR 3.4.11.2	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]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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:

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.

----------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.

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two or more charging pumps capable of injecting into the RCS.	----------NOTE---------- Two charging pumps may be capable of injecting into the RCS during pump swap operation for ≤ 15 minutes. ---------- 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. OR D.2 Depressurize affected SIT to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours 12 hours
E. One required PORV inoperable in MODE 4.	E.1 Restore required PORV to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One required PORV inoperable in MODE 5 or 6.	F.1 Restore required PORV to OPERABLE status.	24 hours
G. Two required PORVs inoperable. OR Required Action and associated Completion Time of Condition A, B, C, D, E, or F not met. OR 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.	8 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.4.12.3	----------NOTE---------- Required to be performed when complying with LCO 3.4.12b. ---------- Verify each SIT is isolated.	12 hours
SR 3.4.12.4	Verify RCS vent ≥ [1.3] square inches is open.	12 hours for unlocked open vent valve(s) AND 31 days for locked open vent valve(s)
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. OR Pressure boundary LEAKAGE exists.	B.1 Be in MODE 3. AND 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 in MODE 3 or 4 until 12 hours of steady state operation. ---------- Perform RCS water inventory balance.	-----NOTE----- Only required to be performed during steady state operation ---------- 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 are not required to meet the requirements of this LCO when in 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. 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]. ----------	(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	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
	[AND]		
	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.	72 hours
		or	
	A.2	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
	AND		
	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 or [18] months AND Prior to entering MODE 2 whenever 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 (continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.14.1 (continued)	Within 24 hours following valve actuation due to automatic or manual action or flow through the valve
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; [and]

b. One containment atmosphere radioactivity monitor (gaseous or particulate); [and

c. One containment air cooler condensate flow rate monitor.]

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump monitor inoperable. [OR Required containment air cooler flow rate monitor inoperable.]	----------NOTE---------- LCO 3.0.4 is not applicable. ---------- A.1 Perform SR 3.4.13.1. AND A.2 Restore containment sump monitor to OPERABLE status.	 Once per 24 hours 30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required containment atmosphere radioactivity monitor inoperable.	----------NOTE---------- LCO 3.0.4 is not applicable. ----------	
	B.1.1 Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR	
	B.1.2 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 Perform SR 3.4.15.1.	Once per 8 hours
	OR	
	C.2 Perform SR 3.4.13.1.	Once per 24 hours

(continued)

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. OR D.2 Restore required containment air cooler condensate flow rate monitor to OPERABLE status.	30 days 30 days
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 5.	6 days 36 days
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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.15.2	Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitor.	31 days
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the required containment sump monitor.	[18] months
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 iodine activity of the reactor coolant shall be limited to:

a. DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm; and

b. Gross specific activity ≤ 100/$\bar{E}$ μCi/gm.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 μCi/gm.	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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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
C. Gross specific activity of the reactor coolant not within limit.	C.1 Perform SR 3.4.16.2. AND C.2 Be in MODE 3 with T_{avg} < 500°F.	4 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify reactor coolant gross specific activity ≤ $100/\bar{E}$ μCi/gm.	7 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 AND 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 $\bar{E}$ 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

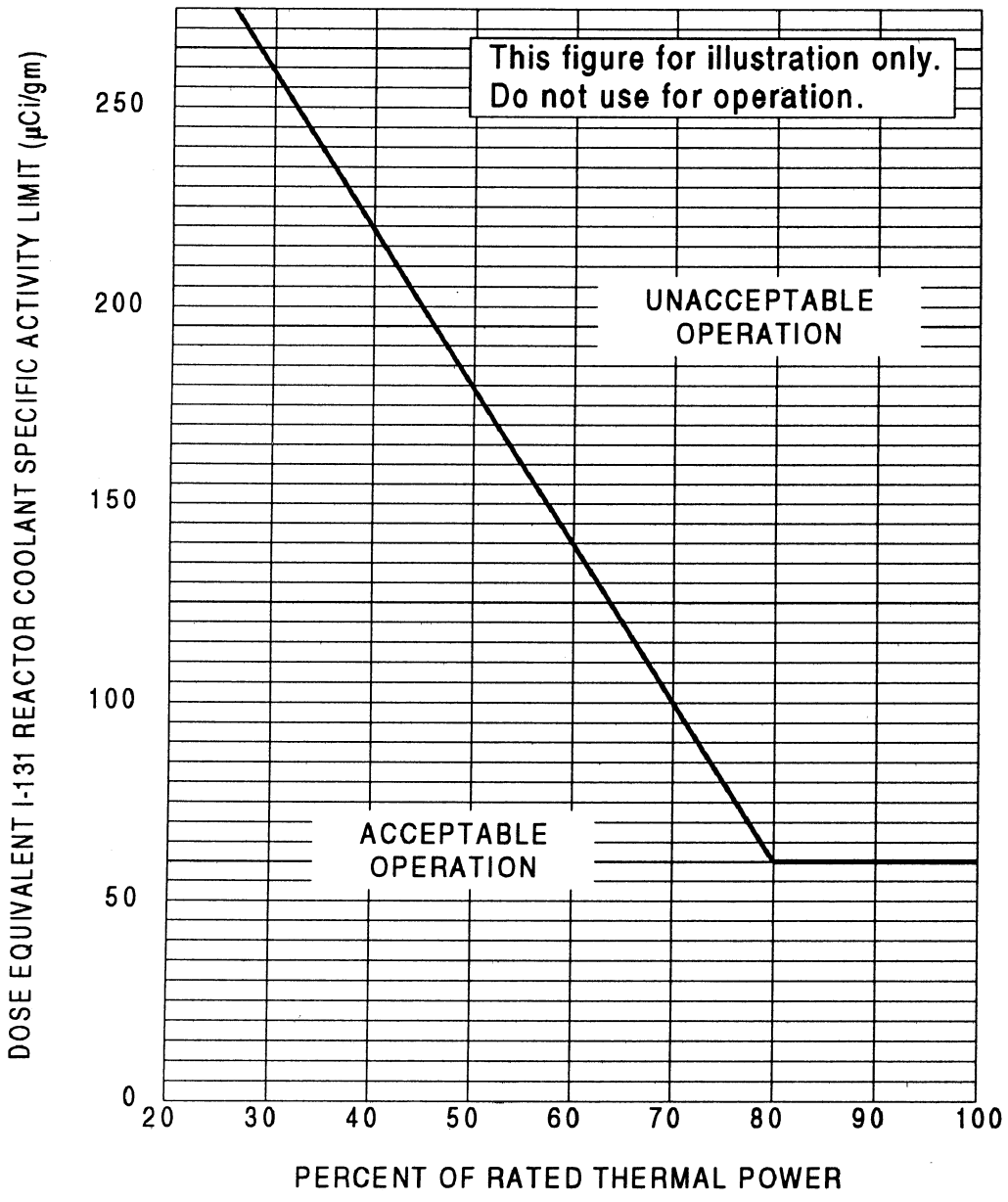

Figure 3.4.16-1 (page 1 of 1)
Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity Limit
Versus Percent of RATED THERMAL POWER With Reactor Coolant
Specific Activity >1.0 µCi/gm DOSE EQUIVALENT I-131

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 RCS Loops—Test Exceptions

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 ≥ [700] psia.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One SIT inoperable due to boron concentration not within limits.	A.1	Restore boron concentration to within limits.	72 hours
B. One SIT inoperable for reasons other than Condition A.	B.1	Restore SIT to OPERABLE status.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Reduce pressurizer pressure to < [700] psia.	12 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 ≥ [1802 cubic feet (28% narrow range) and ≤ 1914 cubic feet (72% narrow range)].	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 AND -----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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 ≥ [1700] psia.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more trains inoperable. AND At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	A.1 Restore train(s) to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Reduce pressurizer pressure to < [1700] psia.	6 hours 12 hours

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 the following ECCS pumps develop the required differential pressure on recirculation flow. Pump / Differential Pressure, psid HPSI[a] / ≥ [1600] LPSI[b] / ≥ [300]	In accordance with the Inservice Testing Program

(continued)

(a) high pressure safety injection

(b) low pressure safety injection

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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
SR 3.5.2.6	Verify each ECCS automatic valve 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. Valve Number [ ] [ ] . . . [ ]	[18] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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:		In accordance with applicable SRs
	[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	

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. OR 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. AND 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 granular trisodium phosphate dodecahydrate.	[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 10 CFR 50, Appendix J, as modified by approved exemptions. The maximum allowable leakage rate, L_a, is [ ]% of containment air weight per day at the calculated peak containment pressure, P_a.	-----NOTE----- SR 3.0.2 is not applicable ---------- In accordance with 10 CFR 50, Appendix J, as modified by approved exemptions
[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]. ----------	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.1 Verify the OPERABLE door is closed in the affected air lock. AND A.2 Lock the OPERABLE door closed in the affected air lock. 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.	1 hour 24 hours 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. ----------	(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.1	Verify an OPERABLE door is closed in the affected air lock.	1 hour
	AND		
	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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. 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 3.6.2.1	----------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 of SR 3.6.1.1 in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions. ----------	
	Perform required air lock leakage rate testing in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.	-----NOTE----- SR 3.0.2 is not applicable ----------
	The acceptance criteria for air lock testing 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 $\leq$ [.01 L_a] when tested at $\geq$ [10.0 psig].	In accordance with 10 CFR 50, Appendix J, as modified by approved exemptions

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.2.2	----------NOTE---------- Only required to be performed upon entry into containment. ---------- Verify only one door in the air lock can be opened at a time.	184 days

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 containment isolation valves. ---------- One or more penetration flow paths with one containment isolation valve inoperable [except for purge valve leakage and shield building bypass leakage not within limit].	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. AND	4 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 --------NOTE-------- Valves and blind flanges in high radiation areas 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 AND 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 containment isolation valves. ---------- One or more penetration flow paths with two containment isolation valves inoperable [except for purge valve leakage and shield building bypass leakage not within limit].	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

(continued)

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. AND C.2 --------NOTE--------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	[4] hours Once per 31 days
[D. Secondary containment bypass leakage not within limit.]	D.1 Restore leakage within limit.	4 hours
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]. AND	24 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. (continued)	E.2	--------NOTE-------- Valves and blind flanges in high radiation areas 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 AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
	AND		
	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	Be in MODE 3.	6 hours
	AND		
	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 is required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	31 days

(continued)

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 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 power operated and each automatic containment isolation valve is within limits.	[In accordance with the Inservice Testing Program or 92 days]
SR 3.6.3.6	----------NOTE---------- Results shall be evaluated against acceptance criteria of SR 3.6.1.1 in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions. ---------- Perform leakage rate testing for containment purge valves with resilient seals.	184 days AND Within 92 days after opening the valve

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.6.3.7	Verify each automatic containment isolation valve 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	----------NOTE---------- Results shall be evaluated against acceptance criteria of SR 3.6.1.1 in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions. ---------- Verify the combined leakage rate for all secondary containment bypass leakage paths is ≤ [L_a] when pressurized to ≥ [psig].	[18] months

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]; [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. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

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

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO
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 84 hours
C. One containment cooling train inoperable.	C.1 Restore containment cooling train to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two containment cooling trains inoperable.	D.1 Restore one containment cooling train to OPERABLE status.	72 hours
E. Two containment spray trains inoperable. OR Any combination of three or more trains inoperable.	E.1 Enter LCO 3.0.3.	Immediately
F. Required Action and associated Completion Time of Condition C or D not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6A.1	Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6A.2	Operate each containment cooling train fan unit for ≥ 15 minutes.	31 days
SR 3.6.6A.3	Verify each containment cooling train cooling water flow rate is ≥ [2000] gpm to each fan cooler.	31 days
[SR 3.6.6A.4	Verify the containment spray piping is full of water to the [100] ft level in the containment spray header.	31 days]
SR 3.6.6A.5	Verify each containment spray pump [develops ≥ [250] psid differential pressure on recirculation flow].	In accordance with the Inservice Testing Program
SR 3.6.6A.6	Verify each automatic containment spray valve in the flow path actuates to the correct position on an actual or simulated actuation signal.	[18] months
SR 3.6.6A.7	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	[18] months
SR 3.6.6A.8	Verify each containment cooling train starts automatically on an actual or simulated actuation signal.	[18] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.6A.9 Verify each spray nozzle is unobstructed.	[At first refueling AND] 10 years

3.6 CONTAINMENT SYSTEMS

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

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	7 days AND 14 days from discovery of failure to meet the LCO
B. One containment cooling train inoperable.	B.1 Restore containment cooling train to OPERABLE status.	7 days AND 14 days from discovery of failure to meet the LCO
C. Two containment spray trains inoperable.	C.1 Restore one containment spray train to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One containment spray train and one containment cooling train inoperable.	D.1	Restore containment spray train to OPERABLE status.	72 hours
	OR		
	D.2	Restore containment cooling train to OPERABLE status.	72 hours
E. Two containment cooling trains inoperable.	E.1	Restore one containment cooling train to OPERABLE status.	72 hours
F. Any combination of three or more trains inoperable.	F.1	Enter LCO 3.0.3.	Immediately
G. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	G.1	Be in MODE 3.	6 hours
	AND		
	G.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.6B.1	Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.6.6B.2	Operate each containment cooling train fan unit for ≥ 15 minutes.	31 days
SR 3.6.6B.3	Verify each containment cooling train cooling water flow rate is ≥ [2000] gpm to each fan cooler.	31 days
[SR 3.6.6B.4	Verify the containment spray piping is full of water to the [100] ft level in the containment spray header.	31 days]
SR 3.6.6B.5	Verify each containment spray pump [develops ≥ [250] psid differential pressure on recirculation flow].	In accordance with the Inservice Testing Program
SR 3.6.6B.6	Verify each automatic containment spray valve in the flow path actuates to its correct position on an actual or simulated actuation signal.	[18] months
SR 3.6.6B.7	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	[18] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6B.8	Verify each containment cooling train starts automatically on an actual or simulated actuation signal.	[18] months
SR 3.6.6B.9	Verify each spray nozzle is unobstructed.	[At first refueling AND 10 years]

3.6 CONTAINMENT SYSTEMS

3.6.7 Spray Additive System (Atmospheric and Dual)

LCO 3.6.7 The Spray Additive System shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify each spray additive manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.7.2	Verify spray additive tank solution volume is ≥ [816] gal [90%] and ≤ [896] gal [100%].	184 days
SR 3.6.7.3	Verify spray additive tank [N_2H_4] solution concentration is ≥ [33]% and ≤ [35]% by weight.	184 days
SR 3.6.7.4	Verify each spray additive pump develops a differential pressure of [100] psid on recirculation flow.	In accordance with the Inservice Testing Program
SR 3.6.7.5	Verify each spray additive automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal.	[18] months
SR 3.6.7.6	Verify spray additive flow [rate] from each solution's flow path.	5 years

3.6 CONTAINMENT SYSTEMS

3.6.8 Hydrogen Recombiners (Atmospheric and Dual) (if permanently installed)

LCO 3.6.8 [Two] hydrogen recombiners shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One hydrogen recombiner inoperable.	A.1 --------NOTE--------- LCO 3.0.4 is not applicable. ---------- Restore hydrogen recombiner to OPERABLE status.	30 days
B. Two hydrogen recombiners inoperable.	B.1 Verify by administrative means that the hydrogen control function is maintained.	1 hour AND Every 12 hours thereafter
	AND	
	B.2 Restore one hydrogen recombiner to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.8.1	Perform a system functional test for each hydrogen recombiner.	[18] months
SR 3.6.8.2	Visually examine each hydrogen recombiner enclosure and verify there is no evidence of abnormal conditions.	[18] months
SR 3.6.8.3	Perform a resistance to ground test for each heater phase.	[18] months

3.6 CONTAINMENT SYSTEMS

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

LCO 3.6.9 [Two] HMS trains shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One HMS train inoperable.	A.1 --------NOTE-------- LCO 3.0.4 is not applicable. ---------- Restore HMS train to OPERABLE status.	30 days
B. Two HMS trains inoperable.	B.1 Verify by administrative means that the hydrogen control function is maintained. AND B.2 Restore one HMS train to OPERABLE status.	1 hour AND Every 12 hours thereafter 7 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.9.1	Operate each HMS train for ≥ 15 minutes.	92 days
SR 3.6.9.2	Verify each HMS train flow rate on slow speed is ≥ [37,000] cfm.	[18] months
SR 3.6.9.3	Verify each HMS train starts on an actual or simulated actuation signal.	[18] months

3.6 CONTAINMENT SYSTEMS

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

LCO 3.6.10 [Two] ICS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ICS train inoperable.	A.1 Restore ICS train to OPERABLE status.	7 days
B. 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 3.6.10.1	Operate each ICS train for [≥ 10 continuous hours with heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.6.10.2	Perform required ICS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.10.3	Verify each ICS train actuates on an actual or simulated actuation signal.	[18] months
SR 3.6.10.4	Verify each ICS filter bypass damper can be opened.	[18] months

3.6 CONTAINMENT SYSTEMS

3.6.11 Shield Building (Dual)

LCO 3.6.11 Shield building shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shield building inoperable.	A.1 Restore shield building to OPERABLE status.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.11.1 Verify annulus negative pressure is > [5] inches water gauge.	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.11.2	Verify each door in each access opening is closed, except when the access opening is being used for normal transient entry and exit[; then, at least one door shall be closed].	31 hours
SR 3.6.11.3	Verify shield building structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the shield building.	During shutdown for SR 3.6.1.1 Type A tests
SR 3.6.11.4	Verify each Shield Building Exhaust Air Cleanup System train with a final flow rate ≤ [ ] cfm produces a pressure equal to or more negative than [-0.25] inch water gauge in the annulus within [1] minute after a start signal.	[18] months

3.6 CONTAINMENT SYSTEMS

3.6.12 Vacuum Relief Valves (Dual)

LCO 3.6.12 Two vacuum relief lines shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.12.1	Verify each vacuum relief line OPERABLE in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program

3.6 CONTAINMENT SYSTEMS

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

LCO 3.6.13 Two SBEACS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SBEACS train inoperable.	A.1 Restore train to OPERABLE status.	7 days
B. 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 3.6.13.1	Operate each SBEACS train for [≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.6.13.2	Perform required SBEACS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.13.3	Verify each SBEACS train actuates on an actual or simulated actuation signal.	[18] months
SR 3.6.13.4	Verify each SBEACS filter bypass damper can be opened.	[18] months
SR 3.6.13.5	Verify each SBEACS train flow rate is ≥ [ ] cfm.	[18] months on a STAGGERED TEST BASIS

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

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

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.1.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each required MSSV lift setpoint per Table 3.7.1-2 in accordance with the Inservice Testing Program. Following testing, lift settings shall be within ± 1%.	In accordance with the Inservice Testing Program

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

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

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

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

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 [Two] MSIVs shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify closure time of each MSIV is ≤ [4.6] seconds on an actual or simulated actuation signal.	In accordance with the [Inservice Testing Program or [18] months]

3.7 PLANT SYSTEMS

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

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

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MFIVs [or [MFIV] bypass valves] inoperable.	A.1 Close or isolate inoperable MFIV [or [MFIV] bypass valve].	[8 or 72] hours
	AND	
	A.2 Verify inoperable MFIV [or [MFIV] bypass valve] is closed or isolated.	Once per 7 days
[B. [Two] valves in the same flow path inoperable.	B.1 Isolate affected flow path.	8 hours
	AND	
	B.2 Verify inoperable MFIV [or [MFIV] bypass valve] is closed or isolated.	7 days]

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. [AND] C.2 Be in MODE 4.	6 hours [12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify the closure time of each MFIV [and [MFIV] bypass valve] is ≤ [7] seconds on an actual or simulated actuation signal.	In accordance with the [Inservice Testing Program or [18] months]

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Dump Valves (ADVs)

LCO 3.7.4 [Two] ADV lines shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ADV line inoperable.	A.1 --------NOTE--------- LCO 3.0.4 is not applicable. ---------- Restore ADV line to OPERABLE status.	7 days
B. [Two] or more [required] ADV lines inoperable.	B.1 Restore [one] ADV line to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. [AND] C.2 Be in MODE 4 without reliance upon steam generator for heat removal.	6 hours [12] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify one complete cycle of each ADV.	[18] months
SR 3.7.4.2	Verify one complete cycle of each ADV block valve.	[18] months

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 [Three] AFW trains shall be OPERABLE.

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One steam supply to turbine driven AFW pump inoperable.	A.1 Restore steam supply to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
B. One AFW train inoperable [for reasons other than Condition A] in MODE 1, 2, or 3.	B.1 Restore AFW train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A [or B] not met. OR [Two] AFW trains inoperable in MODE 1, 2, or 3.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	6 hours [18] hours
D. [Three] AFW trains inoperable in MODE 1, 2, or 3.	D.1 --------NOTE-------- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ---------- Initiate action to restore one AFW train to OPERABLE status.	Immediately
E. Required AFW train inoperable in MODE 4.	E.1 --------NOTE-------- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ---------- Initiate action to restore one AFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.5.1	Verify each AFW manual, power operated, and automatic valve in each water flow path and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.5.2	----------NOTE---------- Not required to be performed for the turbine driven AFW pump until [24] hours after reaching [800] psig in the steam generators. ---------- Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.	[31] days on a STAGGERED TEST BASIS
SR 3.7.5.3	----------NOTE---------- Not required to be performed for the turbine driven AFW pump until [24] hours after reaching [800] psig in the steam generators. ---------- Verify each AFW automatic valve actuates to the correct position on an actual or simulated actuation signal when in MODE 1, 2, or 3.	[18] months
SR 3.7.5.4	Verify each AFW pump starts automatically on an actual or simulated actuation signal when in MODE 1, 2, or 3.	[18] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.5.5	Verify the proper alignment of the required AFW flow paths by verifying flow from the condensate storage tank to each steam generator.	Prior to entering MODE 2 whenever unit has been in MODE 5 or 6 for > 30 days

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST level shall be ≥ [350,000] gal.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. CST level not within limit.	A.1	Verify OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND		
	A.2	Restore CST level to within limit.	7 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 without reliance on steam generator for heat removal.	[18] hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify CST level is ≥ [350,000] gal.	12 hours

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CCW train inoperable.	A.1	--------NOTE-------- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops—MODE 4" for shutdown cooling made inoperable by CCW. ---------- Restore CCW train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 AND B.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.8 Service Water System (SWS)

LCO 3.7.8 Two SWS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One SWS train inoperable.	A.1	--------NOTES-------- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources—Operating," for emergency diesel generator made inoperable by SWS. 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops—MODE 4," for shutdown cooling made inoperable by SWS. ---------- Restore SWS train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 <u>AND</u> B.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.8.1	----------NOTE---------- Isolation of SWS flow to individual components does not render SWS inoperable. ---------- Verify each SWS manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.8.2	Verify each SWS automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal.	[18] months
SR 3.7.8.3	Verify each SWS pump starts automatically on an actual or simulated actuation signal.	[18] months

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more cooling towers with one cooling tower fan inoperable.	A.1 Restore cooling tower fan(s) to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR UHS inoperable [for reasons other than Condition A].	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify water level of UHS is ≥ [562] ft [mean sea level].	24 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.9.2	Verify average water temperature of UHS is ≤ [90]°F.	24 hours
SR 3.7.9.3	Operate each cooling tower fan for ≥ [15] minutes.	31 days

3.7 PLANT SYSTEMS

3.7.10 Essential Chilled Water (ECW)

LCO 3.7.10 [Two] ECW trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECW train inoperable.	A.1 Restore ECW train 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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify each ECW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.10.2	Verify the proper actuation of each ECW System component on an actual or simulated actuation signal.	[18] months

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Cleanup System (CREACS)

LCO 3.7.11 Two CREACS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREACS train inoperable.	A.1 Restore CREACS train to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours
C. Required Action and associated Completion Time of Condition A not met [in MODES 5 and 6, or] during movement of irradiated fuel assemblies.	C.1 --------NOTE--------- Place in toxic gas protection mode if automatic transfer to toxic gas mode inoperable. ---------- Place OPERABLE CREACS train in emergency radiation protection mode. OR	 Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1 Suspend CORE ALTERATIONS. AND	Immediately
	C.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
D. Two CREACS trains inoperable in MODE 1, 2, 3, or 4.	D.1 Enter LCO 3.0.3.	Immediately
E. Two CREACS trains inoperable [in MODES 5 and 6, or] during movement of irradiated fuel assemblies.	E.1 Suspend CORE ALTERATIONS. AND	Immediately
	E.2 Suspend movement of irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Operate each CREACS train for [≥ 10 continuous hours with heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.11.2	Perform required CREACS filter testing in accordance with [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
SR 3.7.11.3	Verify each CREACS train actuates on an actual or simulated actuation signal.	[18] months
SR 3.7.11.4	Verify one CREACS train can maintain a positive pressure of ≥ [0.125] inches water gauge, relative to the adjacent [area] during the emergency radiation state of the emergency mode of operation at a emergency ventilation flow rate of ≤ [3000] cfm.	[18] months on a STAGGERED TEST BASIS

3.7 PLANT SYSTEMS

3.7.12 Control Room Emergency Air Temperature Control System (CREATCS)

LCO 3.7.12 Two CREATCS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREATCS train inoperable.	A.1 Restore CREATCS train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours
C. Required Action and associated Completion Time of Condition A not met [in MODE 5 or 6, or] during movement of irradiated fuel assemblies.	C.1 Place OPERABLE CREATCS train in operation. OR [C.2.1 Suspend CORE ALTERATIONS. AND] C.2.2 Suspend movement of irradiated fuel assemblies.	Immediately [Immediately] Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two CREATCS trains inoperable in MODE 1, 2, 3, or 4.	D.1 Enter LCO 3.0.3.	Immediately
E. Two CREATCS trains inoperable [in MODE 5 or 6, or] during movement of irradiated fuel assemblies.	E.1 Suspend CORE ALTERATIONS. AND	Immediately
	E.2 Suspend movement of irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	Verify each CREATCS train has the capability to remove the assumed heat load.	[18] months

3.7 PLANT SYSTEMS

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

LCO 3.7.13 Two ECCS PREACS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECCS PREACS train inoperable.	A.1 Restore ECCS PREACS train to OPERABLE status.	7 days
B. 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 3.7.13.1	Operate each ECCS PREACS train for [≥ 10 continuous hours with the heater operating or (for systems without heaters) ≥ 15 minutes].	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.13.2	Perform required ECCS PREACS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
SR 3.7.13.3	Verify each ECCS PREACS train actuates on an actual or simulated actuation signal.	[18] months
SR 3.7.13.4	Verify one ECCS PREACS train can maintain a negative pressure ≥ [ ] inches water gauge relative to atmospheric pressure during the [post accident] mode of operation at a flow rate of ≤ [20,000] cfm.	[18] months on a STAGGERED TEST BASIS
SR 3.7.13.5	Verify each ECCS PREACS filter bypass damper can be opened.	[18] months

3.7 PLANT SYSTEMS

3.7.14 Fuel Building Air Cleanup System (FBACS)

LCO 3.7.14 Two FBACS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One FBACS train inoperable.	A.1	Restore FBACS train to OPERABLE status.	7 days
[B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4. OR Two FBACS trains inoperable in MODE 1, 2, 3, or 4.]	B.1 AND B.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours
C. Required Action and Associated Completion Time [of Condition A] not met during movement of irradiated fuel assemblies in the fuel building.	C.1 OR C.2	Place OPERABLE FBACS train in operation. Suspend movement of irradiated fuel assemblies in the fuel building.	Immediately Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two FBACS trains inoperable during movement of irradiated fuel assemblies in the fuel building.	D.1 Suspend movement of irradiated fuel assemblies in the fuel building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.14.1	Operate each FBACS train for [≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.7.14.2	Perform required FBACS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
[SR 3.7.14.3	Verify each FBACS train actuates on an actual or simulated actuation signal.	[18] months]
SR 3.7.14.4	Verify one FBACS train can maintain a negative pressure ≥ [ ] inches water gauge with respect to atmospheric pressure, during the [post accident] mode of operation at a flow rate ≤ [3000] cfm.	[18] months on a STAGGERED TEST BASIS

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.14.5	Verify each FBACS filter bypass damper can be opened.	[18] months

3.7 PLANT SYSTEMS

3.7.15 Penetration Room Exhaust Air Cleanup System (PREACS)

LCO 3.7.15 Two PREACS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One PREACS train inoperable.	A.1 Restore PREACS train to OPERABLE status.	7 days
B. 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 3.7.15.1	Operate each PREACS train for [≥ 10 continuous hours with the heater operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.7.15.2	Verify required PREACS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.15.3	Verify each PREACS train actuates on an actual or simulated actuation signal.	[18] months
SR 3.7.15.4	Verify one PREACS train can maintain a negative pressure ≥ [ ] inches water gauge with respect to atmospheric pressure during the [post accident] mode of operation at a flow rate of ≤ [3000] cfm.	[18] months on a STAGGERED TEST BASIS
SR 3.7.15.5	Verify each PREACS filter bypass damper can be opened.	[18] months

3.7 PLANT SYSTEMS

3.7.16 Fuel Storage Pool Water Level

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.16.1	Verify the fuel storage pool water level is ≥ 23 ft above the top of irradiated fuel assemblies seated in the storage racks.	7 days

3.7 PLANT SYSTEMS

3.7.17 Fuel Storage Pool Boron Concentration

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

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Fuel storage pool boron concentration not within limit.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------		
	A.1	Suspend movement of fuel assemblies in the fuel storage pool.	Immediately
	AND		
	A.2.1	Initiate action to restore fuel storage pool boron concentration to within limit.	Immediately
	OR		
	A.2.2	Verify by administrative means [Region 2] fuel storage pool verification has been performed since the last movement of fuel assemblies in the fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.17.1	Verify the fuel storage pool boron concentration is within limit.	7 days

3.7 PLANT SYSTEMS

3.7.18 Spent Fuel Assembly Storage

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

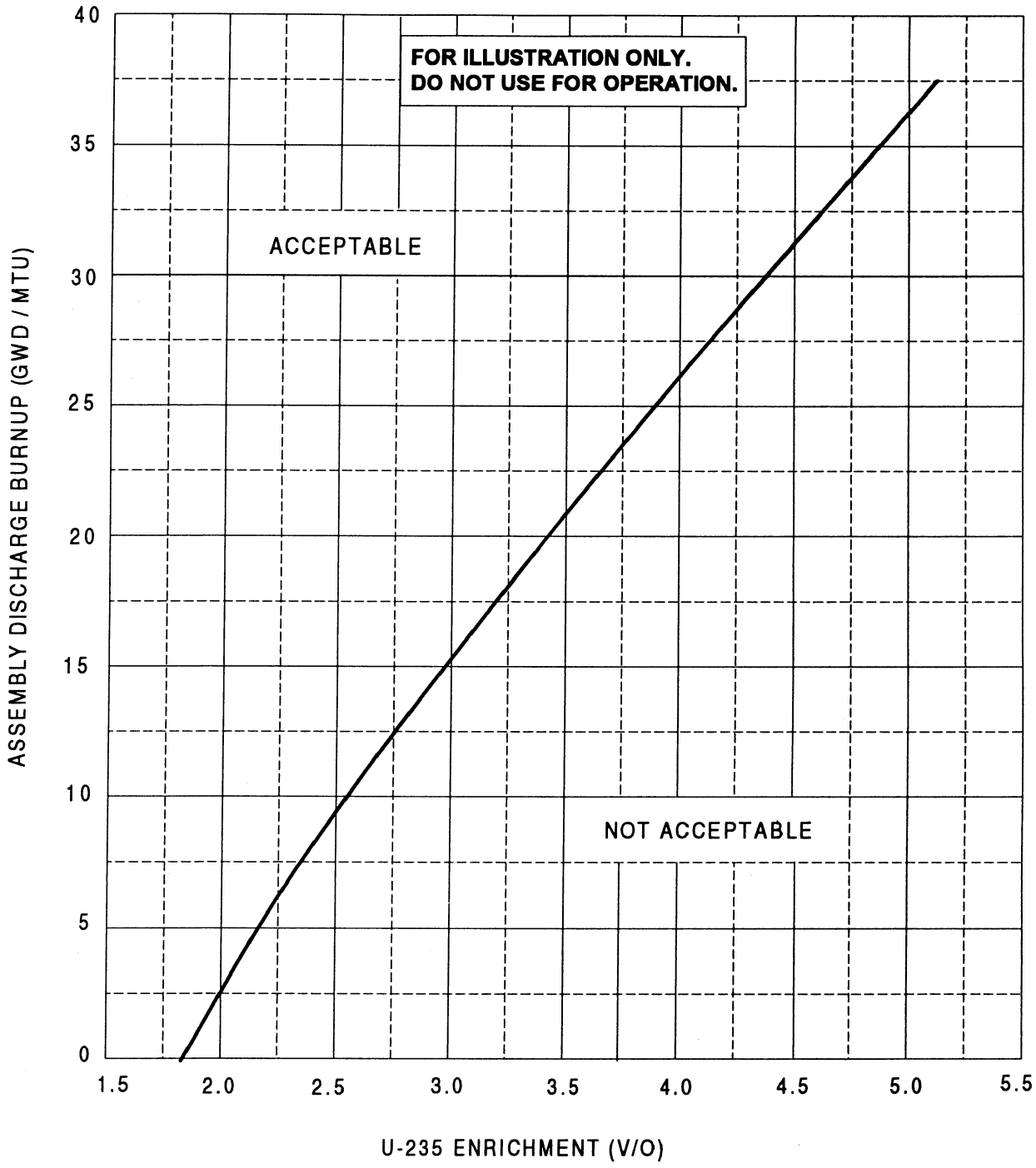

Figure 3.7.18-1 (page 1 of 1)
Discharge Burnup vs. Initial Enrichment for Region II Racks

3.7 PLANT SYSTEMS

3.7.19 Secondary Specific Activity

LCO 3.7.19 The specific activity of the secondary coolant shall be ≤ [0.10] μCi/gm DOSE EQUIVALENT I-131.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.19.1	Verify the specific activity of the secondary coolant is within limit.	[31] days

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources—Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; [and]

b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System[; and

c. Automatic load sequencers for Train A and Train B].

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

ACTIONS

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	Restore [required] offsite circuit to OPERABLE status.	72 hours AND 6 days from discovery of failure to meet LCO
B. ---------NOTE--------- Required Action B.3.1 or B.3.2 shall be completed if this Condition is entered. ---------- One [required] DG inoperable.	B.1	Perform SR 3.8.1.1 for the OPERABLE [required] offsite circuit(s).	1 hour AND Once per 8 hours thereafter
	AND		
	B.2	Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	AND		
	B.3.1	Determine OPERABLE DG(s) is not inoperable due to common cause failure.	[24] hours
	OR		
	B.3.2	Perform SR 3.8.1.2 for OPERABLE DG(s).	[24] hours
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.4 Restore [required] DG to OPERABLE status.	72 hours AND 6 days from discovery of failure to meet LCO
C. Two [required] offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	AND	
	C.2 Restore one [required] offsite circuit to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One [required] offsite circuit inoperable. AND One [required] DG inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems—Operating," when Condition D is entered with no AC power source to one train. ---------- D.1 Restore [required] offsite circuits to OPERABLE status. OR D.2 Restore [required] DG to OPERABLE status.	 12 hours 12 hours
E. Two [required] DGs inoperable.	E.1 Restore one [required] DG to OPERABLE status.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. ---------NOTE--------- This Condition may be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event. ---------- One [required] [automatic load sequencer] inoperable.	F.1 Restore [required] [automatic load sequencer] to OPERABLE status.	[12] hours
G. Required Action and Associated Completion Time of Condition A, B, C, D, [or] E [, or F] not met.	G.1 Be in MODE 3. AND G.2 Be in MODE 5.	6 hours 36 hours
H. Three or more [required] AC sources inoperable.	H.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each [required] offsite circuit.	7 days
SR 3.8.1.2	----------NOTES---------- 1. Performance of SR 3.8.1.7 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. [3. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.] ---------- Verify each DG starts from standby conditions and achieves steady state voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	As specified in Table 3.8.1-1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	----------NOTES---------- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2 or SR 3.8.1.7. ---------- Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes at a load ≥ [4500] kW and ≤ [5000] kW.	As specified in Table 3.8.1-1
SR 3.8.1.4	Verify each day tank [and engine mounted tank] contains ≥ [220] gal of fuel oil.	31 days
SR 3.8.1.5	Check for and remove accumulated water from each day tank [and engine mounted tank].	[31] days
SR 3.8.1.6	Verify the fuel oil transfer system operates to [automatically] transfer fuel oil from storage tank[s] to the day tank [and engine mounted tank].	[92] days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.7	----------NOTE---------- All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts from standby condition and achieves, in ≤ [10] seconds, voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	184 days
[SR 3.8.1.8]	[----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1 or 2. 2. Credit may be taken for unplanned events that satisfy this SR. ----------] Verify [automatic [and] manual] transfer of AC power sources from the normal offsite circuit to each alternate [required] offsite circuit.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1 or 2. 2. Credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify each DG, operating at a power factor ≤ [0.9], rejects a load ≥ [1200] kW, and: a. Following load rejection, the frequency is ≤ [63] Hz; b. Within [3] seconds following load rejection, the voltage is ≥ [3740] V and ≤ [4580] V; and c. Within [3] seconds following load rejection, the frequency is ≥ [58.8] Hz and ≤ [61.2] Hz.	[18 months]
SR 3.8.1.10	----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1 or 2. 2. Credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify each DG, operating at a power factor ≤ [0.9], does not trip, and voltage is maintained ≤ [5000] V during and following a load rejection of ≥ [4500] kW and ≤ [5000] kW.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.11 ----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 3. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ [10] seconds, 2. energizes auto-connected shutdown loads through [automatic load sequencer], 3. maintains steady state voltage ≥ [3740] V and ≤ [4580] V, 4. maintains steady state frequency ≥ [58.8] Hz and ≤ [61.2] Hz, and 5. supplies permanently connected [and auto-connected] shutdown loads for ≥ 5 minutes.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.12 ----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. 3. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each DG auto-starts from standby condition and: a. In ≤ [10] seconds after auto-start and during tests, achieves voltage ≥ [3740] V and ≤ [4580] V; b. In ≤ [10] seconds after auto-start and during tests, achieves frequency ≥ [58.8] Hz and ≤ [61.2] Hz; c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are energized [or auto-connected through the automatic load sequencer] to the offsite power system.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1 or 2. 2. Credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify each DG automatic trip is bypassed on [actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ESF actuation signal] except: a. Engine overspeed; [and] b. Generator differential current[; c. Low lube oil pressure; d. High crankcase pressure; and e. Start failure relay].	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	----------NOTES---------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. 3. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG, operating at a power factor ≤ [0.9], operates for ≥ 24 hours: a. For ≥ [2] hours loaded ≥ [5250] kW and ≤ [5500] kW; and b. For the remaining hours of the test loaded ≥ [4500] kW and ≤ [5000] kW.	[18 months]
SR 3.8.1.15	----------NOTES---------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ [2] hours loaded ≥ [4500] kW and ≤ [5000] kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts and achieves, in ≤ [10] seconds, voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.16	----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 2. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	[18 months]
[SR 3.8.1.17	----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 2. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ESF actuation signal overrides the test mode by: a. Returning DG to ready-to-load operation [; and b. Automatically energizing the emergency load from offsite power].	[18 months]]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.18	----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 2. Credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify interval between each sequenced load block is within ± [10% of design interval] for each emergency [and shutdown] load sequencer.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.19 ----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 3. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ [10] seconds, 2. energizes auto-connected emergency loads through [load sequencer], 3. achieves steady state voltage ≥ [3740] V and ≤ [4580] V, 4. achieves steady state frequency ≥ [58.8] Hz and ≤ [61.2] Hz, and 5. supplies permanently connected [and auto-connected] emergency loads for ≥ [5] minutes.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.20	----------NOTE---------- All DG starts may be preceded by an engine prelube period. ---------- Verify, when started simultaneously from standby condition, each DG achieves, in ≤ [10] seconds, voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	10 years

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

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

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

(b) This test frequency shall be maintained until seven consecutive failure free starts from standby conditions and load and run tests have been performed. This is consistent with Regulatory Position [ ], of Regulatory Guide 1.9, Revision 3. If, subsequent to the 7 failure free tests, 1 or more additional failures occur, such that there are again 4 or more failures in the last 25 tests, the testing interval shall again be reduced as noted above and maintained until 7 consecutive failure free tests have been performed.

[Note: If Revision 3 of Regulatory Guide 1.9 is not approved, the above table will be modified to be consistent with the existing version of Regulatory Guide 1.108, GL 84-15, or other approved version.]

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources—Shutdown

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

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems Shutdown"; and

b. One diesel generator (DG) capable of supplying one train of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. ----------	
	A.1 Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend movement of irradiated fuel assemblies. AND	Immediately
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs). AND	Immediately
	A.2.4 Initiate action to suspend operations involving positive reactivity additions. AND	Immediately
	A.2.5 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One required DG inoperable.	B.1 Suspend CORE ALTERATIONS. AND	Immediately
	B.2 Suspend movement of irradiated fuel assemblies. AND	Immediately
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to suspend OPDRVs. AND	Immediately
	B.4 Initiate action to suspend operations involving positive reactivity additions. AND	Immediately
	B.5 Initiate action to restore required DG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	----------NOTE---------- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.8 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, [SR 3.8.1.18,] and SR 3.8.1.19. ----------	
	For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources—Operating," except SR 3.8.1.17 and SR 3.8.1.20, are applicable.	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel level < [33,000] gal and > [28,285] gal in storage tank.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory < [500] gal and > [425] gal.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more DGs with stored fuel oil total particulates not within limits.	C.1 Restore fuel oil total particulates to within limits.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with starting air receiver pressure < [225] psig and ≥ [125] psig.	E.1 Restore starting air receiver pressure to ≥ [225] psig.	48 hours
F. Required Action and associated Completion Time not met. OR One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains ≥ [33,000] gal of fuel.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.2	Verify lubricating oil inventory is ≥ [500] gal.	31 days
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG air start receiver pressure is ≥ [225] psig.	31 days
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	[31] days
SR 3.8.3.6	For each fuel oil storage tank: a. Drain the fuel oil; b. Remove the sediment; and c. Clean the tank.	10 years

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources—Operating

LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One DC electrical power subsystem inoperable.	A.1 Restore DC electrical power subsystem to OPERABLE status.	2 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 3.8.4.1 Verify battery terminal voltage is ≥ [129/258] V on float charge.	7 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.2	Verify no visible corrosion at terminals and connectors. OR Verify connection resistance [is ≤ [1E-5 ohm] for inter-cell connections, ≤ [1E-5 ohm] for inter-rack connections, ≤ [1E-5 ohm] for inter-tier connections, and ≤ [1E-5 ohm] for terminal connections].	92 days
SR 3.8.4.3	Verify cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration.	[12] months
SR 3.8.4.4	Remove visible terminal corrosion, verify cell to cell and terminal connections are clean and tight, and are coated with anti-corrosion material.	[12] months
SR 3.8.4.5	Verify connection resistance [is ≤ [1E-5 ohm] for inter-cell connections, ≤ [1E-5 ohm] for inter-rack connections, ≤ [1E-5 ohm] for inter-tier connections, and ≤ [1E-5 ohm] for terminal connections].	[12] months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.6	----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 2. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify each battery charger supplies ≥ [400] amps at ≥ [125/250] V for ≥ [8] hours.	[18 months]
SR 3.8.4.7	----------NOTES---------- 1. SR 3.8.4.8 may be performed in lieu of SR 3.8.4.7 once per 60 months. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 3. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	[18 months]

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.8	----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 2. 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.	60 months AND -----NOTE------ Only applicable when battery shows degradation or has reached [85]% of the expected life ---------- 12 months

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources—Shutdown

LCO 3.8.5 DC electrical power subsystem shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems—Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate action to suspend operations involving positive reactivity additions. AND A.2.5 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	----------NOTE---------- The following SRs are not required to be performed: SR 3.8.4.6, SR 3.8.4.7, and SR 3.8.4.8. ---------- For DC sources required to be OPERABLE, the following SRs are applicable: SR 3.8.4.1 SR 3.8.4.4 SR 3.8.4.7 SR 3.8.4.2 SR 3.8.4.5 SR 3.8.4.8. SR 3.8.4.3 SR 3.8.4.6	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for the Train A and Train B batteries shall be within the Category A and B limits of Table 3.8.6-1.

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 more batteries with one or more battery cell parameters not within limits.	A.1	Verify pilot cell[s] electrolyte level and float voltage meet Table 3.8.6-1 Category C values.	1 hour
	AND		
	A.2	Verify battery cell parameters meet Table 3.8.6-1 Category C values.	24 hours
	AND		
	A.3	Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.	31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells < [60]°F. OR One or more batteries with one or more battery cell parameters not within Category C values.	B.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	7 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	92 days AND Once within 24 hours after battery discharge < [110] V AND Once within 24 hours after battery overcharge > [150] V
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ [60]°F.	92 days

Table 3.8.6-1 (page 1 of 1)
Battery Surveillance Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE VALUE FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark(a)	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark(a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity(b)(c)	≥ [1.200]	≥ [1.195]	Not more than 0.020 below average connected cells AND Average of all connected cells ≥ [1.195]

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

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

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

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 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 transformer[s]; and

b. All other AC vital buses for both trains 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	Power AC vital bus from its [Class 1E] constant voltage source transformer.	2 hours
	AND		
	A.2	Restore inverter to OPERABLE status.	24 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

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."

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more [required] inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate action to suspend operations involving positive reactivity additions. AND A.2.5 Initiate action to restore required inverters to OPERABLE status.	Immediately 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 AC electrical power distribution subsystem inoperable.	A.1 Restore AC electrical power distribution subsystem to OPERABLE status.	8 hours AND 16 hours from discovery of failure to meet LCO
B. One AC vital bus inoperable.	B.1 Restore AC vital bus subsystem to OPERABLE status.	2 hours AND 16 hours from discovery of failure to meet LCO
C. One DC electrical power distribution subsystem inoperable.	C.1 Restore DC electrical power distribution subsystem to OPERABLE status.	2 hours AND 16 hours from discovery of failure to meet LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. 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 3.8.9.1	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 irradiated fuel assemblies.

ACTIONS

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. OR	Immediately
	A.2.1 Suspend CORE ALTERATIONS. AND	Immediately
	A.2.2 Suspend movement of irradiated fuel assemblies. AND	Immediately
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel. AND	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND	
	A.2.5 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.6 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, DC, and 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.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Boron concentration not within limit.	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend positive reactivity additions.	Immediately
	AND	
	A.3 Initiate actions to restore boron concentration to within limits.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within 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 SRM inoperable.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend positive reactivity additions.	Immediately
B. Two SRMs inoperable.	B.1	Initiate actions to restore one SRM to OPERABLE status.	Immediately
	AND		
	B.2	Perform SR 3.9.1.1.	4 hours AND Once per 12 hours thereafter

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Perform CHANNEL CHECK.	12 hours
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 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.

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend movement of 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	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 in operation.

---NOTE---
The required SDC loop may be removed from operation for ≤ 1 hour per [8] hour period, provided no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration.

APPLICABILITY: MODE 6 with the water level ≥ 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. SDC loop requirements not met.	A.1	Suspend operations involving a reduction in reactor coolant boron concentration.	Immediately
	AND		
	A.2	Suspend loading irradiated fuel assemblies in the core.	Immediately
	AND		
	A.3	Initiate action to satisfy SDC loop requirements.	Immediately
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	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.

APPLICABILITY: MODE 6 with the water level < 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One SDC loop inoperable.	A.1	Initiate action to restore SDC loop to OPERABLE status.	Immediately
	OR		
	A.2	Initiate actions to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately
B. No SDC loop OPERABLE or in operation.	B.1	Suspend operations involving a reduction in reactor coolant boron concentration.	Immediately
	AND		
	B.2	Initiate action to restore one SDC loop to OPERABLE status and to operation.	Immediately

SURVEILLANCE REQUIREMENTS

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

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 CORE ALTERATIONS, except during latching and unlatching of control rod drive shafts,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Refueling water level not within limit.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend movement of irradiated fuel assemblies within containment.	Immediately
	AND		
	A.3	Initiate actions to restore refueling cavity water level to within limits.	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

4.1.1 Site and Exclusion Area Boundaries

The site and exclusion area boundaries [shall be as described or as shown in Figure 4.1-1].

4.1.2 Low Population Zone (LPZ)

The LPZ [shall be as described or as shown in Figure 4.1-2].

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain [217] fuel assemblies. Each assembly shall consist of a matrix of zirconium alloy 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.

(continued)

4.0 DESIGN FEATURES (continued)

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];]

[e. New or partially spent fuel assemblies with a discharge burnup in the "acceptable range" of Figure [3.7.17-1] 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 [3.7.17-1] will be stored in compliance with the [FSAR, approved procedures, Licensee Controlled Specification, or etc.].]

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. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in [Section 9.1 of the FSAR];

(continued)

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

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.

This figure shall consist of [a map of] the site area and provide, as a minimum, the information described in Section [2.1.2] of the FSAR relating to [the map].

Figure 4.1-1 (page 1 of 1)
Site and Exclusion Area Boundaries

This figure shall consist of [a map of] the site area showing the LPZ boundary. Features such as towns, roads, and recreational areas shall be indicated in sufficient detail to allow identification of significant shifts in population distribution within the LPZ.

Figure 4.1-2 (page 1 of 1)
Low Population Zone

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

5.1.1 The [Plant Superintendent] shall be responsible for overall unit operation and shall delegate in writing the succession to this responsibility during his absence.

The [Plant Superintendent], or his designee, in accordance with approved administrative procedures, shall approve prior to implementation each proposed test or experiment and proposed changes and modifications to unit systems or equipment that affect nuclear safety.

5.1.2 The [Shift Supervisor (SS)] shall be responsible for the control room command function. A management directive to this effect, signed by the [highest level of corporate or site management] shall be issued annually to all station personnel. During any absence of the [SS] from the control room while the unit is in MODE 1, 2, 3, or 4, an individual with a valid 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 a valid 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 shall be documented in the [FSAR];

b. The [Plant Superintendent] 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. The [a specified corporate executive position] shall have corporate responsibility for overall plant nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the plant to ensure nuclear safety; and

d. The individuals who train the operating staff, 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 be as follows:

a. Each on duty shift shall be composed of at least the minimum shift crew composition shown in Table 5.2.2-1.

(continued)

5.2 Organization

5.2.2 Unit Staff (continued)

b. At least one licensed Reactor Operator (RO) shall be present in the control room when fuel is in the reactor. In addition, while the unit is in MODE 1, 2, 3, or 4, at least one licensed Senior Reactor Operator (SRO) shall be present in the control room.

c. A [Health Physics Technician] shall be on site when fuel is in the reactor. The position may be vacant for not more than 2 hours, in order to provide for unexpected absence, provided immediate action is taken to fill the required position.

d. Either a licensed SRO or licensed SRO limited to fuel handling who has no concurrent responsibilities during this operation shall be present during fuel handling and shall directly supervise all CORE ALTERATIONS.

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

Adequate shift coverage shall be maintained without routine heavy use of overtime. The objective shall be to have operating personnel work an [8 or 12] hour day, nominal 40 hour week while the unit is operating. However, in the event that unforeseen problems require substantial amounts of overtime to be used, or during extended periods of shutdown for refueling, major maintenance, or major plant modification, on a temporary basis the following guidelines shall be followed:

1. An individual should not be permitted to work more than 16 hours straight, excluding shift turnover time;

2. An individual should not be permitted to work more than 16 hours in any 24 hour period, nor more than 24 hours in any 48 hour period, nor more than 72 hours in any 7 day period, all excluding shift turnover time;

3. A break of at least 8 hours should be allowed between work periods, including shift turnover time;

(continued)

5.2 Organization

5.2.2 Unit Staff (continued)

4. Except during extended shutdown periods, the use of overtime should be considered on an individual basis and not for the entire staff on a shift.

Any deviation from the above guidelines shall be authorized in advance by the [Plant Superintendent] or his designee, in accordance with approved administrative procedures, or by higher levels of management, in accordance with established procedures and with documentation of the basis for granting the deviation.

Controls shall be included in the procedures such that individual overtime shall be reviewed monthly by the [Plant Superintendent] or his designee to ensure that excessive hours have not been assigned. Routine deviation from the above guidelines is not authorized.

OR

The amount of overtime worked by unit staff members performing safety related functions shall be limited and controlled in accordance with the NRC Policy Statement on working hours (Generic Letter 82-12).

f. The [Operations Manager or Assistant Operations Manager] shall hold an SRO license.

g. The Shift Technical Advisor (STA) shall provide advisory technical support to the Shift Supervisor (SS) in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit.

Table 5.2.2-1 (page 1 of 1)
Minimum Shift Crew Composition[a]
[Single Unit Facility]

POSITION[b]	MINIMUM CREW NUMBER	
	UNIT IN MODE 1, 2, 3, OR 4	UNIT IN MODE 5 OR 6
SS	1	1
SRO	1	None
RO	2	1
AO	2	1
STA[c]	1	None

(a) The shift crew composition may be one less than the minimum requirements of Table 5.2.2-1 for not more than 2 hours to accommodate unexpected absences of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements of Table 5.2.2-1. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

(b) Table Notation:

SS - [Shift Supervisor] with a Senior Reactor Operator license;
SRO - Individual with a Senior Reactor Operator license;
RO - Individual with a Reactor Operator license;
AO - Auxiliary Operator;
STA - Shift Technical Advisor.

(c) The STA position may be filled by an on-shift SS or SRO provided the individual meets the Commission Policy Statement on Engineering Expertise on Shift.

Table 5.2.2-1 (page 1 of 1)
Minimum Shift Crew Composition[a]
[Two Units With a Common Control Room]
(Totals for Both Units)

POSITION[b]	MINIMUM CREW NUMBER		
	EACH UNIT IN MODE 1, 2, 3, OR 4	ONE UNIT IN MODE 1, 2, 3, OR 4, AND ONE UNIT IN MODE 5 OR 6 OR DEFUELED	EACH UNIT IN MODE 5 OR 6 OR DEFUELED
SS	1	1	1
SRO	1	1	None
RO	3	3	2
AO	3	3	3
STA[c]	1	1	None

(a) The shift crew composition may be one less than the minimum requirements of Table 5.2.2-1 for not more than 2 hours to accommodate unexpected absence of on-duty shift crew members, provided immediate action is taken to restore the shift crew composition to within the minimum requirements of Table 5.2.2-1. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

(b) Table Notation:

SS - [Shift Supervisor] with a Senior Reactor Operator license for each unit whose reactor contains fuel.

SRO - Individual with a Senior Reactor Operator license for each unit whose reactor contains fuel. Otherwise, provide an individual for each unit who holds a Senior Reactor Operator license for the unit assigned. During CORE ALTERATIONS on either unit at least one licensed SRO or licensed SRO limited to fuel handling, who has no other concurrent responsibilities, must be present.

RO - Individual with a Reactor Operator license or a Senior Reactor Operator license for unit assigned. At least one RO shall be assigned to each unit whose reactor contains fuel and one RO shall be assigned as relief operator for unit(s) in MODE 1, 2, or 3. Individuals acting as relief operators shall hold a license for both units. Otherwise, for each unit, provide a relief operator who holds a license for the unit assigned.

AO - At least one auxiliary operator shall be assigned to each unit whose reactor contains fuel.

STA - Shift Technical Advisor.

(c) The STA position may be filled by an on-shift SS or SRO provided the individual meets the Commission Policy Statement on Engineering Expertise on Shift.

Table 5.2.2-1 (page 1 of 1)
Minimum Shift Crew Composition[a]
[Two Units With Two Control Rooms]
(Numbers for Each Unit)

POSITION[b]	MINIMUM CREW NUMBER			
	UNIT IN MODE 1, 2, 3, OR 4	UNIT IN MODE 5 OR 6	UNIT IN MODE 1, 2, 3, OR 4, OTHER UNIT IN MODE 5 OR 6 OR DEFUELED	UNIT IN MODE 5 OR 6, OTHER UNIT IN MODE 5 OR 6 OR DEFUELED
SS	1[d]	1[d]	1[d]	1[d]
SRO	1	None	1	None
RO	2	1	2	1
AO	2	1	2	2[e]
STA[c]	1[d]	None	1	None

(a) The shift crew composition may be one less than the minimum requirements of Table 5.2.2-1 for not more than 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements of Table 5.2.2-1. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

(b) Table Notation:

SS - [Shift Supervisor] with a Senior Reactor Operator license;
SRO - Individual with a Senior Reactor Operator license;
RO - Individual with a Reactor Operator license;
AO - Auxiliary Operator;
STA - Shift Technical Advisor.

(c) The STA position may be filled by an on-shift SS or SRO provided the individual meets the Commission Policy Statement on Engineering Expertise on Shift.

(d) Individual may fill the same position on the other unit if licensed for both.

(e) One of the two required individuals may fill the same position on the other unit.

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]. In addition, the Shift Technical Advisor shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift.

5.0 ADMINISTRATIVE CONTROLS

5.4 Training

5.4.1 A retraining and replacement training program for the unit staff shall be maintained under the direction of the [position title] and shall meet or exceed the requirements and recommendations of Section [ ] of [an ANSI Standard acceptable to the NRC staff] and 10 CFR 55, and, for appropriate designated positions, shall include familiarization with relevant industry operational experience.

5.0 ADMINISTRATIVE CONTROLS

5.5 Reviews and Audits

Reviewer's Note: The licensee shall describe the method(s) established to conduct independent reviews and audits. The methods may take a range of forms acceptable to the NRC. These methods may include creating an organizational unit or a standing or ad hoc committee, or assigning individuals capable of conducting these reviews and audits. When an individual performs a review function, a cross disciplinary review determination is necessary. If deemed necessary, such reviews shall be performed by the review personnel of the appropriate discipline. Individual reviewers shall not review their own work. Regardless of the method used, the licensee shall specify the functions, organizational arrangement, responsibilities, appropriate ANSI/ANS 3.1-1981 qualifications, and reporting requirements of each functional element or unit that contributes to these processes.

Reviews and audits of activities affecting plant safety have two distinct elements. The first element is the reviews performed by plant staff personnel to ensure that day to day activities are conducted in a safe manner. These reviews are described in Section 5.5.1. The second element, described in Section 5.5.2, is the [offsite] reviews and audits of unit activities and programs affecting nuclear safety that are performed independent of the plant staff. The [offsite] reviews and audits should provide integration of the reviews and audits into a cohesive program that provides senior level utility management with an assessment of facility operation and recommends actions to improve nuclear safety and plant reliability. It should include an assessment of the effectiveness of reviews conducted according to Section 5.5.1.

5.5.1 Plant Reviews

Reviewer's Note: The licensee shall describe provisions for plant reviews (organization, reporting, records) and the appropriate ANSI/ANS Standard for personnel qualification.

5.5.1.1 Functions

The [plant review method specified in Specification 5.5.1] shall, as a minimum, incorporate functions that:

a. Advise the [Plant Superintendent] on all matters related to nuclear safety;

(continued)

5.5 Reviews and Audits

5.5.1.1 Functions (continued)

b. Recommend to the [Plant Superintendent] approval or disapproval of items considered under Specifications 5.5.1.2.a through 5.5.1.2.f prior to their implementation, except as provided in Specification 5.7.1.3;

c. Determine whether each item considered under Specifications 5.5.1.2.a through 5.5.1.2.d constitutes an unreviewed safety question as defined in 10 CFR 50.59; and

d. Notify the [Vice President—Nuclear Operations] of any safety significant disagreement between the [review organization or individual specified in Specification 5.5.1] and the [Plant Superintendent] within 24 hours. However, the [Plant Superintendent] shall have responsibility for resolution of such disagreements pursuant to Specification 5.1.1.

5.5.1.2 Responsibilities

The [plant review method specified in Specification 5.5.1] shall be used to conduct, as a minimum, reviews of the following:

a. All proposed procedures required by Specification 5.7.1.1 and changes thereto;

b. All proposed programs required by Specification 5.7.2 and changes thereto;

c. All proposed changes and modifications to unit systems or equipment that affect nuclear safety;

d. All proposed tests and experiments that affect nuclear safety;

e. Review and documentation of judgment concerning prolonged operation with protection channels placed in bypass since the last [plant review meeting] and the repair of these channels; and

f. All proposed changes to these Technical Specifications (TS), their Bases, and the Operating License.

(continued)

5.5 Reviews and Audits (continued)

5.5.2 [Offsite] Review and Audit

Reviewer's Note: The licensee shall describe the provisions for reviews and audits independent of the plant's staff (organization, reporting, and records) and the appropriate ANSI/ANS Standards for personnel qualifications. These individuals may be located onsite or offsite provided organizational independence from plant staff is maintained. The [technical] review responsibilities, Specification 5.5.2.4, shall include several individuals located onsite.

5.5.2.1 Functions

The [offsite review and audit provisions specified in Specification 5.5.2] shall, as a minimum, incorporate the following functions that:

a. Advise the [Vice President—Nuclear Operations] on all matters related to nuclear safety;

b. Advise the management of the audited organization, and [its Corporate Management and Vice President—Nuclear Operations], of the audit results as they relate to nuclear safety;

c. Recommend to the management of the audited organization, and its management, any corrective action to improve nuclear safety and plant operation; and

d. Notify the [Vice President—Nuclear Operations] of any safety significant disagreement between the [review organization or individual specified in Specification 5.5.2] and the [organization or function being reviewed] within 24 hours.

5.5.2.2 [Offsite] Review Responsibilities

The [review method specified in Specification 5.5.2] shall be responsible for the review of:

a. The safety evaluations for changes to procedures, equipment, or systems, and tests or experiments completed under the provisions of 10 CFR 50.59, to verify that such actions do not constitute an unreviewed safety question as defined in 10 CFR 50.59;

(continued)

5.5 Reviews and Audits

5.5.2.2 [Offsite] Review Responsibilities (continued)

b. Proposed changes to procedures, equipment, or systems that involve an unreviewed safety question as defined in 10 CFR 50.59;

c. Proposed tests or experiments that involve an unreviewed safety question as defined in 10 CFR 50.59;

d. Proposed changes to TS and the Operating License;

e. Violations of codes, regulations, orders, license requirements, and internal procedures or instructions having nuclear safety significance;

f. All Licensee Event Reports required by 10 CFR 50.73;

g. Plant staff performance;

h. Indications of unanticipated deficiencies in any aspect of design or operation of structures, systems, or components that could affect nuclear safety;

i. Significant accidental, unplanned, or uncontrolled radioactive releases, including corrective action to prevent recurrence;

j. Significant operating abnormalities or deviations from normal and expected performance of equipment that affect nuclear safety; and

k. The performance of the corrective action system.

Reports or records of these reviews shall be forwarded to the [Vice President—Nuclear Operations] within 30 days following completion of the review.

5.5.2.3 Audit Responsibilities

The audit responsibilities shall encompass:

a. The conformance of unit operation to provisions contained within the TS and applicable license conditions;

(continued)

5.5 Reviews and Audits

5.5.2.3 Audit Responsibilities (continued)

b. The training and qualifications of the unit staff;

c. The implementation of all programs required by Specification 5.7.2;

d. Actions taken to correct deficiencies occurring in equipment, structures, systems, components, or method of operation that affect nuclear safety; and

e. Other activities and documents as requested by the [Vice President—Nuclear Operations].

Reports or records of these audits shall be forwarded to the [Vice President—Nuclear Operations] within 30 days following completion of the review.

5.5.2.4 [Technical] Review Responsibilities

The [technical] review responsibilities shall encompass:

a. Plant operating characteristics, NRC issuances, industry advisories, Licensee Event Reports, and other sources that may indicate areas for improving plant safety;

b. Plant operations, modifications, maintenance, and surveillance to verify independently that these activities are performed safely and correctly and that human errors are reduced as much as practical;

c. Internal and external operational experience information that may indicate areas for improving plant safety; and

d. Making detailed recommendations through the [Vice President—Nuclear Operations] for revising procedures, equipment modifications or other means of improving nuclear safety and plant reliability.

5.5.3 Records

Written records of reviews and audits shall be maintained. As a minimum these records shall include:

(continued)

5.5 Reviews and Audits

5.5.3 Records (continued)

a. Results of the activities conducted under the provisions of Section 5.5;

b. Recommendations to the management of the organization being audited;

c. An assessment of the safety significance of the review or audit findings;

d. Recommended approval or disapproval of items considered under Specifications 5.5.1.2.a through 5.5.1.2.f; and

e. Determination whether each item considered under Specifications 5.5.1.2.a through 5.5.1.2.e constitutes an unreviewed safety question as defined in 10 CFR 50.59.

5.0 ADMINISTRATIVE CONTROLS

5.6 Technical Specifications (TS) Bases Control

5.6.1 Changes to the Bases of the TS shall be made under appropriate administrative controls and reviewed according to Specification 5.5.1.

5.6.2 Licensees may make changes to Bases without prior NRC approval provided the changes do not involve either of the following:

a. A change in the TS incorporated in the license; or

b. A change to the updated FSAR or Bases that involves an unreviewed safety question as defined in 10 CFR 50.59.

5.6.3 The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

5.6.4 Proposed changes that meet the criteria of (a) or (b) 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.

5.0 ADMINISTRATIVE CONTROLS

5.7 Procedures, Programs, and Manuals

5.7.1 Procedures

5.7.1.1 Scope

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. Security plan implementation;

d. Emergency plan implementation;

e. Quality assurance for effluent and environmental monitoring;

f. Fire Protection Program implementation; and

g. All programs specified in Specification 5.7.2.

h. 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.

5.7.1.2 Review and Approval

Each procedure of Specification 5.7.1.1, and changes thereto, shall be reviewed in accordance with Specification 5.5.1, approved

(continued)

5.7 Procedures, Programs, and Manuals

5.7.1.2 Review and Approval (continued)

by the [Plant Superintendent] or his designee in accordance with approved administrative procedures prior to implementation and reviewed periodically as set forth in administrative procedures.

5.7.1.3 Temporary Changes

Temporary changes to procedures of Specification 5.7.1 may be made provided:

a. The intent of the existing procedure is not altered;

b. The change is approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator license on the unit affected; and

c. The change is documented and reviewed in accordance with Specification 5.5.1 and approved by the [Plant Superintendent] or his designee in accordance with approved administrative procedures within 14 days of implementation.

5.7.2 Programs and Manuals

The following programs shall be established, implemented, and maintained.

5.7.2.1 Radiation Protection Program

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR 20 and shall be approved, maintained, and adhered to for all operations involving personnel radiation exposure.

5.7.2.2 Process Control Program (PCP)

The PCP shall contain the current formulas, sampling, analyses, tests, and determinations to be made to ensure that processing and packaging of solid radioactive wastes will be accomplished to ensure compliance with 10 CFR 20, 10 CFR 61, and 10 CFR 71; state regulations; burial ground requirements; and other requirements governing the disposal of solid radioactive waste.

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2.2 Process Control Program (PCP) (continued)

Licensee initiated changes to the PCP:

a. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:

1. Sufficient information to support the change(s) and appropriate analyses or evaluations justifying the change(s), and

2. A determination that the change(s) maintain the overall conformance of the solidified waste product to the existing requirements of Federal, State, or other applicable regulations.

b. Shall be effective after review and acceptance by the [review method of Specification 5.5.1] and the approval of the [Plant Superintendent].

5.7.2.3 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 programs required by Specification 5.7.2, and descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Radioactive Effluent Release Reports required by Specification [5.9.1.3] and Specification [5.9.1.4].

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),

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2.3 Offsite Dose Calculation Manual (ODCM) (continued)

2. A determination that the change(s) maintain the levels of radioactive effluent control required by 10 CFR 20.106, 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 review and acceptance by the [review method of Specification 5.5.1] and the approval of the [Plant Superintendent]; 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.

5.7.2.4 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 [Recirculation Spray, Safety Injection, Chemical and Volume Control, gas stripper, 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 refueling cycle intervals or less.

5.7.2.5 In Plant Radiation Monitoring

This program provides controls to ensure the capability to accurately determine the airborne iodine concentration in vital areas under accident conditions. This program shall include the following:

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2.5 In Plant Radiation Monitoring (continued)

a. Training of personnel;

b. Procedures for monitoring; and

c. Provisions for maintenance of sampling and analysis equipment.

5.7.2.6 Post Accident Sampling

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.

5.7.2.7 Radioactive Effluent Controls Program

This program conforms to 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program shall be contained in the ODCM, shall be implemented by procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

a. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM;

b. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to 10 CFR 20, Appendix B, Table II, Column 2;

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2.7 Radioactive Effluent Controls Program (continued)

c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.106 and with the methodology and parameters in the ODCM;

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 and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days;

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 to areas beyond the site boundary conforming to the dose associated with 10 CFR 20, Appendix B, Table II, Column 1;

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2 Programs and Manuals (continued)

5.7.2.8 Radiological Environmental Monitoring Program

This program is for monitoring the radiation and radionuclides in the environs of the plant. The program shall provide representative measurements of radioactivity in the highest potential exposure pathways and verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall be contained in the ODCM, shall conform to the guidance of 10 CFR 50, Appendix I, and shall include the following:

a. Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM;

b. A Land Use Census to ensure that changes in the use of areas at and beyond the site boundary are identified and that modifications to the monitoring program are made if required by the results of this census; and

c. Participation in an Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

5.7.2.9 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.

5.7.2.10 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].

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2.10 Pre-Stressed Concrete Containment Tendon Surveillance Program (continued)

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

5.7.2.11 Inservice Inspection Program

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

a. Provisions that inservice inspection of ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda, as required by 10 CFR 50.55a;

b. The provisions of SR 3.0.2 are applicable to the frequencies for performing inservice inspection activities;

c. Inspection of each reactor coolant pump flywheel per the recommendations of regulation position c.4.b of Regulatory Guide 1.14, Revision 1, August 1975; and

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

5.7.2.12 Inservice Testing Program

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

a. Provisions that inservice testing of ASME Code Class 1, 2, and 3 pumps, valves, and snubbers shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda, as required by 10 CFR 50.55a;

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

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2.12 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

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

d. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

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

5.7.2.13 Steam Generator (SG) Tube Surveillance Program

Each SG shall be demonstrated OPERABLE by performance of an inservice inspection program. The program shall include the following:

a. SG tube sample size selection, sample size expansion, and inspection results classification criteria. Sample selection and testing shall be in accordance with [Regulatory Guide 1.83, Revision [ ], date].

b. The establishment of SG tube inspection frequency dependent upon inspection result classification. Inspection frequency shall be in accordance with [Regulatory Guide 1.83, Revision [ ], date].

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2.13 Steam Generator (SG) Tube Surveillance Program (continued)

c. SG tube plugging/repair limits. These limits shall be [40]% of the nominal tube wall thickness consistent with [Regulatory Guide 1.83, Revision [ ], date].

d. Specific definitions and limits for SG tube inservice inspection acceptance criteria consistent with [Regulatory Guide 1.83, Revision [ ], date].

The content and frequency of written reports shall be in accordance with Specification 5.9.2.

The provisions of SR 3.0.2 are applicable to SG Tube Surveillance Program inspection frequencies except those established by Category C-3 inspection results.

[Key elements to be discussed and provided.]

5.7.2.14 Secondary Water Chemistry

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables;

b. Identification of the procedures used to measure the values of the critical variables;

c. Identification of process sampling points which shall include monitoring the discharge of the condensate pumps for evidence of condenser in leakage;

d. Procedures for the recording and management of data;

e. Procedures defining corrective actions for all off control point chemistry conditions; and

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.

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2 Programs and Manuals (continued)

5.7.2.15 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, and ASME N510-1989] 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 as follows [± 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 < [0.5]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified as follows [± 10%]:

ESF Ventilation System	Flowrate
[ ]	[ ]

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] and greater than or equal to the relative humidity specified as follows:

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2.15 Ventilation Filter Testing Program (VFTP) (continued)

ESF Ventilation System	Penetration	RH
[ ]	[ ]	[ ]

[Reviewer's Note: Allowable penetration = [100% - methyl iodide efficiency for charcoal credited in staff safety evaluation]/ (safety factor).

Safety factor = [5] for systems with heaters.
= [7] for systems without heaters.]

d. For each of the ESF systems, demonstrate 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 as follows [± 10%]:

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

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

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2 Programs and Manuals (continued)

5.7.2.16 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides control for potentially explosive gas mixtures contained in the [Waste Gas Holdup System], [the quantity of radioactivity contained in gas storage tanks or fed into the offgas treatment system, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks]. The gaseous radioactivity quantities shall be determined following the methodology in [Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure"]. The liquid radwaste quantities shall be determined in accordance with [Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures"].

The program shall include:

a. The limits for concentrations of hydrogen and oxygen in the [Waste Gas Holdup System] and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion);

b. A surveillance program to ensure that the quantity of radioactivity contained in [each gas storage tank and fed into the offgas treatment system] is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual in an unrestricted area, in the event of [an uncontrolled release of the tanks' contents]; and

c. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the [Liquid Radwaste Treatment System] is less than the amount that would result in concentrations less than the limits of 10 CFR Part 20, Appendix B, Table II, 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.

(continued)

5.7 Procedures, Programs, and Manuals

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

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.

5.7.2.17 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. Other properties for ASTM 2D fuel oil are within limits within 30 days following sampling and addition to storage tanks; and

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

5.7.2.18 Fire Protection Program

This program provides controls to ensure that appropriate fire protection measures are maintained to protect the plant from fire and to ensure the capability to achieve and maintain safe shutdown in the event of a fire is maintained.

5.0 ADMINISTRATIVE CONTROLS

5.8 Safety Function Determination Program (SFDP)

5.8.1 This program ensures loss of safety function is detected and appropriate actions taken. Upon failure to meet two or more LCOs at the same time, 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.

5.8.2 The SFDP shall contain the following:

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

5.8.3 A loss of safety function exists when, assuming no concurrent single failure, 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 system(s) supported by the inoperable support system is also inoperable (Case A); or

b. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable (Case B); or

(continued)

5.8 SFDP

5.8.3 (continued)

c. A required system redundant to support system(s) for the supported systems (a) and (b) above is also inoperable (Case C).

Generic Example:

Train A		Train B	
System i		System i	←Case C
↓		↓	
System ii	←(Support System Inoperable)	System ii	
↓		↓	
System iii		System iii	←Case A
↓		↓	
System iv		System iv	←Case B

5.8.4 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.

5.0 ADMINISTRATIVE CONTROLS

5.9 Reporting Requirements

5.9.1 Routine Reports

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

5.9.1.1 Startup Report

A summary report of plant startup and power escalation testing shall be submitted following:

a. Receipt of an Operating License;

b. Amendment to the license involving a planned increase in power level;

c. Installation of fuel that has a different design or has been manufactured by a different fuel supplier; and

d. Modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the unit.

The initial Startup Report shall address each of the startup tests identified in FSAR, Chapter [14], and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report. Subsequent Startup Reports shall address startup tests that are necessary to demonstrate the acceptability of changes and modifications.

Startup Reports shall be submitted within 90 days following completion of the Startup Test Program; 90 days following resumption or commencement of commercial power operation; or 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of Startup Test Program, and resumption or commencement of commercial operation), supplementary reports shall be submitted at least every 3 months until all three events have been completed.

(continued)

5.9 Reporting Requirements

5.9.1 Routine Reports (continued)

5.9.1.2 Annual Reports

---NOTE---
A single submittal may be made for a multiple unit station. The submittal should combine sections common to all units at the station.

Annual Reports covering the activities of the unit as described below for the previous calendar year shall be submitted by March 31 of each year. [The initial report shall be submitted by March 31 of the year following initial criticality.]

Reports required on an annual basis include:

a. Occupational Radiation Exposure Report

A tabulation on an annual basis of the number of station, utility, and other personnel (including contractors) receiving exposures > 100 mrem/yr and their associated man rem exposure according to work and job functions (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance [describe maintenance], waste processing, and refueling). This tabulation supplements the requirements of 10 CFR 20.407. The dose assignments to various duty functions may be estimated based on pocket dosimeter, thermoluminescent dosimeter (TLD), or film badge measurements. Small exposures totalling < 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources should be assigned to specific major work functions; and

[b. Any other unit unique reports required on an annual basis.]

(continued)

5.9 Reporting Requirements

5.9.1 Routine Reports (continued)

5.9.1.3 Annual Radiological Environmental Operating Report

----------NOTE----------
A single submittal may be made for a multiple unit station. The submittal should combine sections common to all units at the station.

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements [in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979]. [The report shall identify the TLD results that represent collocated dosimeters in relation to the NRC TLD program and the exposure period associated with each result.] In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

(continued)

5.9 Reporting Requirements

5.9.1 Routine Reports (continued)

5.9.1.4 Radioactive Effluent Release 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; 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 shall be submitted 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 50, Appendix I, Section IV.B.1.

5.9.1.5 Monthly Operating Reports

Routine reports of operating statistics and shutdown experience[, including documentation of all challenges to the pressurizer power operated relief valves or pressurizer safety valves,] shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

5.9.1.6 CORE OPERATING LIMITS REPORT (COLR)

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

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

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

(continued)

5.9 Reporting Requirements

5.9.1.6 CORE OPERATING LIMITS REPORT (COLR) (continued)

[Identify the Topical Report(s) by number, title, date, and NRC staff approval document, or identify the staff Safety Evaluation Report for a plant specific methodology by NRC letter and date.]

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (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 mid cycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

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

The RCS pressure and temperature limits, including heatup and cooldown rates, criticality, and hydrostatic and leak test limits, shall be established and documented in the PTLR. [The individual Specifications that address the reactor vessel pressure and temperature limits and the heatup and cooldown rates may be referenced.] The analytical methods used to determine the pressure and temperature limits including the heatup and cooldown rates shall be those previously reviewed and approved by the NRC in [Topical Report(s), number, title, date, and NRC staff approval document, or staff safety evaluation report for a plant specific methodology by NRC letter and date]. The reactor vessel pressure and temperature limits, including those for heatup and cooldown rates, shall be determined so that all applicable limits (e.g., heatup limits, cooldown limits, and inservice leak and hydrostatic testing limits) of the analysis are met. The PTLR, including revisions or supplements thereto, shall be provided upon issuance for each reactor vessel fluency period.

5.9.2 Special Reports

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

(continued)

5.9 Reporting Requirements

5.9.2 Special Reports (continued)

Special Reports shall be submitted in accordance with 10 CFR 50.4 within the time period specified for each report.

The following Special Reports shall be submitted:

a. In the event an ECCS is actuated and injects water into the RCS in MODE 1, 2, or 3, a Special Report shall be prepared and submitted within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70;

[b. If an individual emergency diesel generator (EDG) experiences four or more valid failures in the last 25 demands, these failures and any non valid failures experienced by that EDG in that time period shall be reported within 30 days. Reports on EDG failures shall include the information recommended in Regulatory Guide 1.9, Revision 3, Regulatory Position C.5, or existing Regulatory Guide 1.108 reporting requirement; and]

c. When a Special Report is required by Condition B or G of LCO 3.3.[17], "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.

[d. 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.]

e. Following each inservice inspection of steam generator (SG) tubes, in accordance with the SG Tube Surveillance Program, the number of tubes plugged and tubes sleeved in each SG shall be reported to the NRC within 15 days.

(continued)

5.9 Reporting Requirements

5.9.2 Special Reports (continued)

The complete results of the SG tube inservice inspection shall be submitted to the NRC within 12 months following the completion of the inspection. The report shall include:

1. Number and extent of tubes inspected,

2. Location and percent of wall-thickness penetration for each indication of an imperfection, and

3. Identification of tubes plugged and tubes sleeved.

Results of SG tube inspections which fall into Category C-3 shall be reported to the NRC prior to resumption of plant operation. This report shall provide a description of investigations conducted to determine cause of the tube degradation and corrective measures taken to prevent recurrence.

5.0 ADMINISTRATIVE CONTROLS

5.10 Record Retention

5.10.1 The following records shall be retained for at least 3 years:

a. All License Event Reports required by 10 CFR 50.73;

b. Records of changes made to the procedures required by Specification 5.7.1.1; and

c. Records of radioactive shipments.

5.10.2 The following records shall be retained for at least 5 years:

a. Records and logs of unit operation covering time intervals at each power level;

b. Records and logs of principal maintenance activities—inspections, repair, and replacement of principal items of equipment related to nuclear safety;

c. Records of surveillance activities, inspections, and calibrations required by the Technical Specifications (TS) [and the Fire Protection Program];

d. Records of sealed source and fission detector leak tests and results; and

e. annual physical inventory of all sealed source material of record.

5.10.3 The following records shall be retained for the duration of the unit Operating License:

a. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the FSAR;

b. Records of new and irradiated fuel inventory, fuel transfers, and assembly burnup histories;

c. Records of radiation exposure for all individuals entering radiation control areas;

(continued)

5.10 Record Retention

5.10.3 (continued)

d. Records of gaseous and liquid radioactive material released to the environs;

e. Records of transient or operational cycles for those unit components identified in [FSAR, Section X];

f. Records of reactor tests and experiments;

g. Records of training and qualification for members of the unit staff;

h. Records of inservice inspections performed pursuant to the TS;

i. Records of quality assurance activities required by the Operational Quality Assurance (QA) Manual [not listed in Specification 5.10.1 and which are classified as permanent records by applicable regulations, codes, and standards];

j. Records of reviews performed for changes made to procedures, equipment, or reviews of tests and experiments pursuant to 10 CFR 50.59;

k. Records of the reviews and audits required by Specification 5.5.1 and Specification 5.5.2;

l. Records of the service lives of all hydraulic and mechanical snubbers required by [document where snubber requirements relocated to], including the date at which the service life commences, and associated installation and maintenance records;

[m. Records of secondary water sampling and water quality;]

n. Records of analyses required by the Radiological Environmental Monitoring Program that would permit evaluation of the accuracy of the analysis at a later date (these records should include procedures effective at specified times and QA records showing that these procedures were followed);

(continued)

5.10 Record Retention

5.10.3 (continued)

o. Records of reviews performed for changes made to the Offsite Dose Calculation Manual and the Process Control Program;

[p. Records of prestressed concrete containment tendon surveillances;] and

[q. Records of steam generator tube surveillances].

5.0 ADMINISTRATIVE CONTROLS

[5.11 High Radiation Area]

5.11.1 Pursuant to 10 CFR 20, paragraph 20.203(c)(5), in lieu of the requirements of 10 CFR 20.203(c), each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., [Health Physics Technicians]) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the [Radiation Protection Manager] in the RWP.

5.11.2 In addition to the requirements of Specification 5.11.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent unauthorized entry and the keys shall be maintained under the administrative control of the Shift Foreman on duty or health physics supervision. Doors shall remain locked except during periods of access by personnel

(continued)

[5.11 High Radiation Area]

5.11.2 (continued)

under an approved RWP that shall specify the dose rate levels in the immediate work areas and the maximum allowable stay times for individuals in those areas. In lieu of the stay time specification of the RWP, direct or remote (such as closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed within the area.

5.11.3 For individual high radiation areas with radiation levels of > 1000 mrem/hr, accessible to personnel, that are located within large areas such as reactor containment, where no enclosure exists for purposes of locking, or that cannot be continuously guarded, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded and conspicuously posted, and a flashing light shall be activated as a warning device.

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This report documents the results of the combined effort of the NRC and the industry to produce improved Standard Technical Specifications (STS) for Combustion Engineering Plants. The improved STS were developed based on the criteria in the interim Commission Policy Statement on Technical Specification Improvements for Nuclear Power Reactors, dated February 6, 1987. The improved STS will be used as the basis for individual nuclear power plant licensees to develop improved plant-specific technical specifications. This report contains three volumes. Volume 1 contains the Specifications for all chapters and sections of the improved STS. Volume 2 contains the Bases for Chapters 2.0 and 3.0, and Sections 3.1 - 3.3 of the improved STS. Volume 3 contains the Bases for Sections 3.4 - 3.9 of the improved STS.

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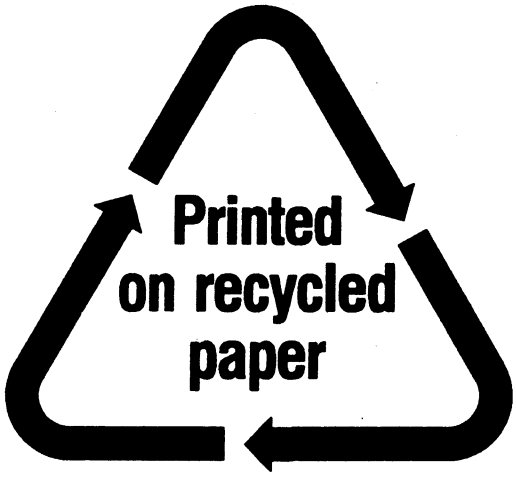

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