OCONEE

TECH. SPEC. & BASES

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APPENDIX A

TO

OPERATING LICENSE NOS. DPR-38, 47, 55

TECHNICAL SPECIFICATIONS

FOR THE

OCONEE NUCLEAR STATION UNITS 1, 2, 3

DUKE ENERGY CORPORATION

DOCKET NOS. 50-269, 270, 287

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1.0 USE AND APPLICATION

1.1 Definitions

NOTE

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

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ALLOWABLE THERMAL POWER	ALLOWABLE THERMAL POWER shall be the maximum reactor core heat transfer rate to the reactor coolant permitted by consideration of the number and configuration of reactor coolant pumps (RCPs) in operation.
AXIAL POWER IMBALANCE	AXIAL POWER IMBALANCE shall be the power in the top half of the core, expressed as a percentage of RATED THERMAL POWER (RTP), minus the power in the bottom half of the core, expressed as a percentage of RTP.
AXIAL POWER SHAPING RODS (APSRs)	APSRs shall be the control components with part length absorbers used to control the axial power distribution of the reactor core. The APSRs are positioned manually by the operator and are not trippable.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the 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 may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel.

1.1 Definitions

CHANNEL CALIBRATION (continued)	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 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.
CONTROL RODS	CONTROL RODS shall be all full length safety and regulating rods that are used to shut down the reactor and control power level during maneuvering operations.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."

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 > 30 minutes, making up at least 95% of the total noniodine activity in the coolant.
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 1. LEAKAGE, such as that from pump seals or valve packing (except 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; b. <u>Unidentified LEAKAGE</u> All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE. c. <u>Pressure Boundary LEAKAGE</u> 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.

1.1 Definitions (continued)

OPERABLE – OPERABILITY	A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: a. Described in the UFSAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
QUADRANT POWER TILT (QPT)	QPT shall be defined by the following equation and is expressed as a percentage. $QPT = 100\left(\frac{\text{Power in any Core Quadrant}}{\text{Average Power of all Quadrants}} - 1\right)$
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2568 MWt.
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 CONTROL RODS (safety and regulating) are fully inserted except for the single CONTROL ROD of highest reactivity worth, which is assumed to be fully withdrawn. With any CONTROL ROD not capable of being fully inserted, the reactivity worth of these CONTROL RODS must be accounted for in the determination of SDM;

1.1 Definitions

SHUTDOWN MARGIN (SDM) (continued)	b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level, and c. There is no change in APSR position.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTIVITY CONDITION (k_{eff})	% RATED THERMAL POWER[a]	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	≥ 0.99	> 5	NA
2	Startup	≥ 0.99	≤ 5	NA
3	Hot Standby	< 0.99	NA	≥ 250
4	Hot Shutdown[b]	< 0.99	NA	250 > T > 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 indentations of the logical connectors. When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.
EXAMPLES	The following examples illustrate the use of logical connectors.

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-1

ACTIONS

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

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

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

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

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

1.0 USE AND APPLICATION

1.3 Completion Times

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

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.

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

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

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

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

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

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.

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

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.

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 (plus the extension) expires while one or more valves are still inoperable, Condition B is entered.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

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

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

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

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

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.	Once per 8 hours
	OR	
	A.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

1.3 Completion Times

EXAMPLES

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. The initial 8 hour interval of Required Action A.1 begins when Condition A is entered and the initial performance of Required Action A.1 must be complete within the first 8 hour interval. If Required Action A.1 is followed and the Required Action is not met within the Completion Time (plus the extension allowed by SR 3.0.2), Condition B is entered. If Required Action A.2 is followed and the Completion Time of 8 hours is not met, Condition B is entered.

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

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

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

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time

1.3 Completion Times

EXAMPLES	EXAMPLE 1.3-7 (continued) 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.
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.

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

1.4 Frequency

EXAMPLES (continued)

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.

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

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

1.4 Frequency

EXAMPLES (continued)

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

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

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

1.4 Frequency

EXAMPLES (continued)

7 day (plus the extension allowed by SR 3.0.2) interval, but operation was < 25% RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours with power ≥ 25% RTP.

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

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 In MODES 1 and 2, the maximum local fuel pin centerline temperature shall be ≤ 4642 - (5.8 x 10^{-3} x (Burnup, MWD/MTU))° F. Operation within this limit is ensured by compliance with the Axial Power Imbalance Protective Limits as specified in the Core Operating Limits Report.

2.1.1.2 In MODES 1 and 2, the departure from nucleate boiling ratio shall be maintained greater than the limit of 1.18 for the BWC correlation. Operation within this limit is ensured by compliance with the Axial Power Imbalance Protective Limits and RCS Variable Low Pressure Protective Limits as specified in the Core Operating Limits Report.

2.1.2 RCS Pressure SL

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

2.2 SL Violations

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

2.2.1 In MODE 1 or 2, if SL 2.1.1.1 or SL 2.1.1.2 is violated, be in MODE 3 within 1 hour.

2.2.2 In MODE 1 or 2, if SL 2.1.2 is violated, restore compliance within limits and be in MODE 3 within 1 hour.

2.2.3 In MODES 3, 4, and 5, if SL 2.1.2 is violated, restore RCS pressure to ≤ 2750 psig within 5 minutes.

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1

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

LCO 3.0.2

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

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

LCO 3.0.3

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

a. MODE 3 within 12 hours;

b. MODE 4 within 18 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

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

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

LCO 3.0.4

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

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)	Exceptions to this Specification are stated in the individual Specifications. LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.
LCO 3.0.5	Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.
LCO 3.0.6	When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.16, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.
LCO 3.0.7	Test Exception LCO 3.1.8 allows specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1

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

SR 3.0.2

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

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

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

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3

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

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

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

3.0 SR APPLICABILITY (continued)

SR 3.0.4

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

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

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

LCO 3.1.1 The SDM shall be within the limit specified in the COLR.

APPLICABILITY: MODES 3, 4, and 5.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify SDM is within the limit specified in the COLR.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Reactivity Balance

LCO 3.1.2 The measured core reactivity balance shall be within ± 1% Δk/k of predicted values.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Measured core reactivity balance not within limit.	A.1	Re-evaluate core design and safety analysis and determine that the reactor core is acceptable for continued operation.	7 days
	AND		
	A.2	Establish appropriate operating restrictions and SRs.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 2.	12 hours

SURVEILLANCE REQUIREMENTS

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

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Moderator Temperature Coefficient (MTC)

LCO 3.1.3 The MTC shall be maintained within the limits specified in the COLR. The maximum positive limit shall be ≤ 0.0 Δk/k/°F at ≥ 95% RTP.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. MTC not within limits.	A.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.3.1 Verify MTC is within the limits specified in the COLR.	Prior to entering MODE 1 after each fuel loading

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 CONTROL ROD Group Alignment Limits

LCO 3.1.4 Each CONTROL ROD shall be OPERABLE and aligned to within 6.5% of its group average height.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One trippable CONTROL ROD inoperable, or not aligned to within 6.5% of its group average height, or both.	A.1 Restore CONTROL ROD alignment.	1 hour
	OR	
	A.2.1.1 Verify SDM is within the limit specified in the COLR.	1 hour AND Once per 12 hours thereafter
	OR	
	A.2.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Reduce THERMAL POWER to ≤ 60% of the ALLOWABLE THERMAL POWER.	2 hours
	AND	
	A.2.3 Reduce the nuclear overpower trip setpoints, based on flux and flux/flow imbalance, to ≤ 65.5% of the ALLOWABLE THERMAL POWER.	10 hours
	AND	
	A.2.4 Verify the potential ejected rod worth is within the assumptions of the rod ejection analysis.	72 hours
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3.	12 hours
C. More than one trippable CONTROL ROD inoperable or not aligned within 6 5% of its group average height, or both.	C.1.1 Verify SDM is within the limit specified in the COLR.	1 hour
	OR	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.1.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	C.2	Be in MODE 3.	12 hours
D. One or more rods untrippable.	D.1.1	Verify SDM is within the limit specified in the COLR.	1 hour
	OR		
	D.1.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	D.2	Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify individual CONTROL ROD positions are within 6.5% of their group average height.	12 hours
SR 3.1.4.2	Verify CONTROL ROD freedom of movement (trippability) by moving each individual CONTROL ROD that is not fully inserted by an amount in any direction sufficient to demonstrate the absence of thermal binding.	92 days
SR 3.1.4.3	Verify the rod drop time for each CONTROL ROD, from the fully withdrawn position, is ≤ 1.66 seconds at reactor coolant full flow conditions or ≤ 1.40 seconds at no flow conditions from power interruption at the CONTROL ROD drive breakers to ¾ insertion (25% withdrawn position).	Prior to reactor criticality after each removal of the reactor vessel head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Safety Rod Position Limits

LCO 3.1.5 Each safety rod shall be fully withdrawn.

---NOTE---
Not required for any safety rod positioned to perform SR 3.1.4.2.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One safety rod not fully withdrawn.	A.1 Withdraw the rod fully.	1 hour
	OR	
	A.2.1.1 Verify SDM is within the limit specified in the COLR.	1 hour
	OR	
	A.2.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.2.2 Declare the rod inoperable.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. More than one safety rod not fully withdrawn.	B.1.1 Verify SDM is within the limit specified in the COLR.	1 hour
	OR	
	B.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	B.2 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each safety rod is fully withdrawn.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 AXIAL POWER SHAPING ROD (APSR) Alignment Limits

LCO 3.1.6 Each APSR shall be OPERABLE and aligned within 6.5% of its group average height.

APPLICABILITY: MODES 1 and 2, when the APSRs are not fully withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One APSR inoperable, not aligned within its limits, or both.	A.1 Perform SR 3.2.2.1.	2 hours AND 2 hours after each APSR movement
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify position of each APSR is within 6.5% of the group average height.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Position Indicator Channels

LCO 3.1.7 One position indicator channel for each CONTROL ROD and APSR shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The required position indicator channel inoperable for one or more rods.	A.1 Declare the rod(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Perform CHANNEL CHECK of required position indicator channel.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 PHYSICS TESTS Exceptions – MODE 2

LCO 3.1.8 During performance of PHYSICS TESTS, the requirements of

LCO 3.1.3, "Moderator Temperature Coefficient (MTC)";
LCO 3.1.5, "Safety Rod Position Limits";
LCO 3.2.1, "Regulating Rod Position Limits"; and
LCO 3.4.2, "RCS Minimum Temperature for Criticality"

may be suspended, provided:

a. THERMAL POWER is ≤ 5% RTP;

b. Nuclear overpower trip setpoint set to ≤ 5% RTP;

c. Nuclear instrumentation wide range high startup rate CONTROL ROD withdrawal inhibit is OPERABLE; and

d. SDM is within the limit specified in the COLR.

APPLICABILITY MODE 2 during PHYSICS TESTS.

ACTIONS

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

(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 exceptions.	15 minutes 1 hour
C. Nuclear overpower trip setpoint is not within limit. OR Nuclear instrumentation wide range high startup rate CONTROL ROD withdrawal inhibit inoperable.	C.1 Suspend PHYSICS TESTS exceptions.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	Verify nuclear overpower trip setpoint is ≤ 5% RTP.	Once within 8 hours prior to performance of PHYSICS TESTS
SR 3.1.8.2	Verify SDM is within the limit specified in the COLR.	24 hours

3.2 POWER DISTRIBUTION LIMITS

3.2.1 Regulating Rod Position Limits

LCO 3.2.1 Regulating rod groups shall be within the physical position, sequence, and overlap limits specified in the COLR.

---NOTE---
Not required for any regulating rod positioned to perform SR 3.1.4.2.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Regulating rod groups sequence or overlap requirements not met.	A.1 Restore regulating rod groups to within limits.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Regulating rod groups positioned in restricted or unacceptable region.	B.1	——NOTE—— Not applicable to regulating rod groups positioned in the restricted region. ————————	
		Initiate boration to restore SDM to within the limits specified in the COLR.	15 minutes
	AND		
	B.2.1	Restore regulating rod groups to within acceptable region.	2 hours
	OR		
	B.2.2	Reduce THERMAL POWER to less than or equal to THERMAL POWER allowed by regulating rod group position limits.	2 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	Verify regulating rod groups are within the sequence and overlap limits as specified in the COLR.	12 hours
SR 3.2.1.2	Verify regulating rod groups meet the position limits as specified in the COLR.	12 hours
SR 3.2.1.3	Verify SDM to be within the limit as specified in the COLR.	Within 4 hours prior to achieving criticality

3.2 POWER DISTRIBUTION LIMITS

3.2.2 AXIAL POWER IMBALANCE Operating Limits

LCO 3.2.2 AXIAL POWER IMBALANCE shall be maintained within the limits specified in the COLR.

APPLICABILITY: MODE 1 with THERMAL POWER > 40% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. AXIAL POWER IMBALANCE not within limits.	A.1 Restore AXIAL POWER IMBALANCE to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ 40% RTP.	2 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify AXIAL POWER IMBALANCE is within limits as specified in the COLR.	12 hours

3.2 POWER DISTRIBUTION LIMITS

3.2.3 QUADRANT POWER TILT (QPT)

LCO 3.2.3 QPT shall be maintained less than or equal to the steady state limits specified in the COLR.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. QPT greater than the steady state limit and less than or equal to the transient limit.	A.1	Reduce THERMAL POWER ≥ 2% RTP from the ALLOWABLE THERMAL POWER for each 1% of QPT greater than the steady state limit.	2 hours
	AND		
	A.2	Reduce nuclear overpower trip setpoints, based on flux and flux/flow imbalance, ≥ 2% RTP for each 1% of QPT greater than the steady state limit.	10 hours
	AND		
	A.3	Restore QPT to less than or equal to the steady state limit.	24 hours from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. QPT greater than the transient limit and less than or equal to the maximum limit due to misalignment of a CONTROL ROD or an APSR.	B.1	Reduce THERMAL POWER ≥ 2% RTP from ALLOWABLE THERMAL POWER for each 1% of QPT greater than the steady state limit.	30 minutes
	AND		
	B.2	Restore QPT to less than or equal to the transient limit.	2 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Reduce THERMAL POWER to < 60% of the ALLOWABLE THERMAL POWER.	2 hours
	AND		
	C.2	Reduce nuclear overpower trip setpoints, based on flux and flux/flow imbalance, to ≤ 65.5% of the ALLOWABLE THERMAL POWER.	10 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. QPT greater than the transient limit and less than or equal to the maximum limit due to causes other than the misalignment of either CONTROL ROD or APSR.	D.1	Reduce THERMAL POWER to < 60% of the ALLOWABLE THERMAL POWER.	2 hours
	AND		
	D.2	Reduce nuclear overpower trip setpoints, based on flux and flux/flow imbalance, to ≤ 65.5% of the ALLOWABLE THERMAL POWER.	10 hours
E. Required Action and associated Completion Time for Condition C or D not met.	E.1	Reduce THERMAL POWER to ≤ 20% RTP.	4 hours
F. QPT greater than the maximum limit.	F.1	Reduce THERMAL POWER to ≤ 20% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify QPT is within limits as specified in the COLR.	7 days AND When QPT has been restored to less than or equal to the steady state limit, 1 hour for 12 consecutive hours, or until verified acceptable at ≥ 95% RTP

3.3 INSTRUMENTATION

3.3.1 Reactor Protective System (RPS) Instrumentation

LCO 3.3.1 Three channels of RPS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required channel inoperable.	A.1	Place channel in trip.	1 hour
B. Two or more required channels inoperable. OR Required Action and associated Completion Time of Condition A not met.	B.1	Enter the Condition referenced in Table 3.3.1-1 for the Function.	Immediately
C. As required by Required Action B.1 and referenced in Table 3.3.1-1.	C.1 AND C.2	Be in MODE 3. Open all control rod drive (CRD) trip breakers.	12 hours 12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action B.1 and referenced in Table 3.3.1-1.	D.1 Open all CRD trip breakers.	6 hours
E. As required by Required Action B.1 and referenced in Table 3.3.1-1.	E.1 Reduce THERMAL POWER < 30% RTP.	6 hours
F. As required by Required Action B.1 and referenced in Table 3.3.1-1.	F.1 Reduce THERMAL POWER < 2% RTP.	12 hours

SURVEILLANCE REQUIREMENTS

NOTE

Refer to Table 3.3.1-1 to determine which SRs apply to each RPS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2	----------NOTE---------- Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. ---------- Compare results of calorimetric heat balance calculation to the power range channel output and adjust power range channel output if calorimetric exceeds power range channel output by ≥ 2% RTP.	24 hours
SR 3.3.1.3	----------NOTE---------- Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. ---------- Compare out of core measured AXIAL POWER IMBALANCE (API_0) to incore measured AXIAL POWER IMBALANCE (API_1) as follows: $(RTP/TP)(API_0 - API_1)$ = imbalance error Adjust power range channel output if the absolute difference between the power range and incore measurements is ≥ 2% RTP.	31 days
SR 3.3.1.4	Perform CHANNEL FUNCTIONAL TEST.	45 days on a STAGGERED TEST BASIS

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.5	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	18 months

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	CONDITIONS REFERENCED FROM REQUIRED ACTION B.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Nuclear Overpower				
a. High Setpoint	1,2[a]	C	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.4 SR 3.3.1.5	≤ 105.5% RTP
b. Low Setpoint	2[b],3[b] 4[b],5[b]	D	SR 3.3.1.1 SR 3.3.1.5	≤ 5% RTP
2. RCS High Outlet Temperature	1,2	C	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ 618°F
3. RCS High Pressure	1,2[a]	C	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ 2355 psig
4. RCS Low Pressure	1,2[a]	C	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≥ 1800 psig
5. RCS Variable Low Pressure	1,2[a]	C	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	As specified in the COLR
6. Reactor Building High Pressure	1,2,3[c]	C	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ 4 psig
7. Reactor Coolant Pump to Power	1,2[a]	C	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	>2% RTP with ≤ 2 pumps operating
8. Nuclear Overpower Flux/Flow Imbalance	1,2[a]	C	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5	As specified in the COLR
9. Main Turbine Trip (Hydraulic Fluid Pressure	≥ 30% RTP	E	SR 3.3.1.4 SR 3.3.1.5	≥ 800 psig
10. Loss of Main Feedwater Pumps (Hydraulic Oil Pressure	≥ 2% RTP	F	SR 3.3.1.4 SR 3.3.1.5	≥ 75 psig
11. Shutdown Bypass RCS High Pressure	2[b],3[b] 4[b],5[b]	D	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ 1720 psig

(a) When not in shutdown bypass operation.

(b) During shutdown bypass operation with any CRD trip breakers in the closed position and the CRD System capable of rod withdrawal.

(c) With any CRD trip breaker in the closed position and the CRD System capable of rod withdrawal.

3.3 INSTRUMENTATION

3.3.2 Reactor Protective System (RPS) Manual Reactor Trip

LCO 3.3.2 The RPS Manual Reactor Trip Function shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5 with any control rod drive (CRD) trip breaker in the closed position and the CRD System capable of rod withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Manual Reactor Trip Function inoperable.	A.1	Restore Function to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met in MODE 1, 2, or 3.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Open all CRD trip breakers.	12 hours
C. Required Action and associated Completion Time not met in MODE 4 or 5.	C.1	Open all CRD trip breakers.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform CHANNEL FUNCTIONAL TEST.	Once prior to each reactor startup if not performed within the previous 7 days

3.3 INSTRUMENTATION

3.3.3 Reactor Protective System (RPS) – Reactor Trip Module (RTM)

LCO 3.3.3 Four RTMs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5 with any control rod drive (CRD) trip breaker in the closed position and the CRD System capable of rod withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One RTM inoperable.	A.1.1	Trip the associated CRD trip breaker.	1 hour
	OR		
	A.1.2	Remove power from the associated CRD trip breaker.	1 hour
	AND		
	A.2	Physically remove the inoperable RTM.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two or more RTMs inoperable in MODE 1, 2, or 3. OR Required Action and associated Completion Time not met in MODE 1, 2, or 3.	B.1 Be in MODE 3. AND B.2.1 Open all CRD trip breakers. OR B.2.2 Remove power from all CRD trip breakers.	12 hours 12 hours 12 hours
C. Two or more RTMs inoperable in MODE 4 or 5. OR Required Action and associated Completion Time not met in MODE 4 or 5.	C.1 Open all CRD trip breakers. OR C.2 Remove power from all CRD trip breakers.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL FUNCTIONAL TEST.	31 days

3.3 INSTRUMENTATION

3.3.4 Control Rod Drive (CRD) Trip Devices

LCO 3.3.4 The following CRD trip devices shall be OPERABLE:

a. Two AC CRD trip breakers;

b. Two DC CRD trip breaker pairs; and

c. Eight electronic trip assembly (ETA) relays.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5 when any CRD trip breaker is in the closed position and the CRD System is capable of rod withdrawal.

ACTIONS

NOTE
Separate Condition entry is allowed for each CRD trip device.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more CRD trip breakers or breaker pair diverse trip Functions inoperable.	A.1 Trip the CRD trip breaker.	48 hours
	OR	
	A.2 Remove power from the CRD trip breaker.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One or more CRD trip breakers or breaker pair inoperable for reasons other than those in Condition A.	B.1	Trip the CRD trip breaker.	1 hour
	OR		
	B.2	Remove power from the CRD trip breaker.	1 hour
C. One or more ETA relays inoperable.	C.1	Transfer affected CONTROL ROD group to power supply with OPERABLE ETA relays.	1 hour
	OR		
	C.2	Trip corresponding AC CRD trip breaker(s).	1 hour
D. Required Action and associated Completion Time not met in MODE 1, 2, or 3.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2.1	Open all CRD trip breakers.	12 hours
	OR		
	D.2.2	Remove power from all CRD trip breakers.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time not met in MODE 4 or 5.	E.1 Open all CRD trip breakers.	6 hours
	OR	
	E.2 Remove power from all CRD trip breakers.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform CHANNEL FUNCTIONAL TEST.	31 days

3.3 INSTRUMENTATION

3.3.5 Engineered Safeguards Protective System (ESPS) Analog Instrumentation

LCO 3.3.5 Three channels of ESPS analog instrumentation for each Parameter in Table 3.3.5-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Parameters with one channel inoperable.	A.1 Place channel in trip.	1 hour
B. One or more Parameters with two or more channels inoperable. OR Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2.1 ----------NOTE---------- Only required for RCS Pressure – Low. ---------- Reduce RCS pressure < 1750 psig. AND	12 hours 36 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.2 ---------NOTE--------- Only required for RCS Pressure – Low Low. ----------	
	Reduce RCS pressure < 900 psig.	36 hours
	AND	
	B.2.3 ---------NOTE--------- Only required for Reactor Building Pressure – High and High High. ----------	
	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.2	Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.5.3	Perform CHANNEL CALIBRATION.	18 months

Table 3.3.5-1 (page 1 of 1)
Engineered Safeguards Protective System Analog Instrumentation

PARAMETER	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	ALLOWABLE VALUE
1. Reactor Coolant System Pressure – Low	≥ 1750 psig	≥ 1590 psig
2. Reactor Coolant System Pressure – Low Low	≥ 900 psig	≥ 500 psig
3. Reactor Building (RB) Pressure – High	1,2,3,4	≤ 4 psig
4. Reactor Building Pressure – High High	1,2,3,4	≤ 15 psig

3.3 INSTRUMENTATION

3.3.6 Engineered Safeguards Protective System (ESPS) Manual Initiation

LCO 3.3.6 Two manual initiation channels of each one of the ESPS Functions below shall be OPERABLE:

a. High Pressure Injection, Reactor Building (RB) Non-Essential Isolation, Keowee Start, Load Shed and Standby Breaker Input, and Keowee Standby Bus Feeder Breaker Input (ES Channels 1 and 2);

b. Low Pressure Injection and RB Essential Isolation (ES Channels 3 and 4);

c. RB Cooling, RB Essential Isolation and Penetration Room Ventilation (ES Channels 5 and 6); and

d. RB Spray (ES Channels 7 and 8).

APPLICABILITY: MODES 1 and 2,
MODES 3 and 4 when associated engineered safeguard equipment is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more ESPS Functions with one channel inoperable.	A.1 Restore channel to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	AND	
	B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform CHANNEL FUNCTIONAL TEST.	18 months

3.3 INSTRUMENTATION

3.3.7 Engineered Safeguards Protective System (ESPS) Digital Automatic Actuation Logic Channels

LCO 3.3.7 Eight ESPS Digital Automatic Actuation Logic Channels shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3 and 4 when associated engineered safeguard (ES) equipment is required to be OPERABLE.

ACTIONS

NOTE
Separate Condition entry is allowed for each automatic actuation logic channel.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more digital automatic actuation logic channels inoperable.	A.1	Place associated component(s) in ES configuration.	1 hour
	OR		
	A.2	Declare the associated component(s) inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform digital automatic actuation logic CHANNEL FUNCTIONAL TEST.	31 days

3.3 INSTRUMENTATION

3.3.8 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.8 The PAM instrumentation for each Function in Table 3.3.8-1 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. ----------NOTE---------- Not applicable to Functions 14, 18, 19, 20 and 22. ---------- One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.6.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ----------NOTE---------- Not applicable to Functions 10, 14, 18, 19, 20 and 22. ---------- One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. ----------NOTE---------- Only applicable to Function 10. ---------- Two required channels inoperable.	D.1 Restore one required channel to OPERABLE status.	72 hours
E. ----------NOTE---------- Only applicable to Function 14. ---------- One required channel inoperable.	E.1 Restore required channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. ----------NOTE---------- Only applicable to Functions 18, 19, 20, and 22. ---------- One or more Functions with required channel inoperable.	F.1	Declare the affected train inoperable.	Immediately
G. Required Action and associated Completion Time of Condition C, D or E not met.	G.1	Enter the Condition referenced in Table 3.3.8-1 for the channel.	Immediately
H. As required by Required Action G.1 and referenced in Table 3.3.8-1.	H.1	Be in MODE 3.	12 hours
	AND		
	H.2	Be in MODE 4.	18 hours
I. As required by Required Action G.1 and referenced in Table 3.3.8-1.	I.1	Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

NOTE

These SRs apply to each PAM instrumentation Function in Table 3.3.8-1 except where indicated.

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.8.2	NOTE Only applicable to PAM Functions 7, 10 and 22. Perform CHANNEL CALIBRATION.	12 months
SR 3.3.8.3	NOTE 1. Neutron detectors are excluded from CHANNEL CALIBRATION. 2. Not applicable to PAM Functions 7,10, and 22. Perform CHANNEL CALIBRATION.	18 months

Table 3.3.8-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION G.1
1.	Wide Range Neutron Flux	2	H
2.	RCS Hot Leg Temperature	2	H
3.	RCS Hot Leg Level	2	I
4.	RCS Pressure (Wide Range)	2	H
5.	Reactor Vessel Head Level	2	I
6.	Containment Sump Water Level (Wide Range)	2	H
7.	Containment Pressure (Wide Range)	2	H
8.	Containment Isolation Valve Position	2 per penetration flow path[(a)(b)(c)]	H
9.	Containment Area Radiation (High Range)	2	I
10.	Containment Hydrogen Concentration	2	H
11.	Pressurizer Level	2	H
12.	Steam Generator Water Level	2 per SG	H
13.	Steam Generator Pressure	2 per SG	H
14.	Borated Water Storage Tank Water Level	2	H
15.	Upper Surge Tank Level	2	H
16.	Core Exit Temperature	2 independent sets of 5[(d)]	H
17.	Subcooling Monitor	2	H
18.	HPI System Flow	1 per train	NA
19.	LPI System Flow	1 per train	NA
20.	Reactor Building Spray Flow	1 per train	NA
21.	Emergency Feedwater Flow	2 per SG	H
22.	Low Pressure Service Water Flow to LPI Coolers	1 per train	NA

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

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

(c) Position indication requirements apply only to containment isolation valves that are electrically controlled.

(d) The subcooling margin monitor takes the average of the five highest CETs for each of the ICCM trains.

3.3 INSTRUMENTATION

3.3.9 Source Range Neutron Flux

LCO 3.3.9 Two source range neutron flux channels shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required source range neutron flux channel inoperable with THERMAL POWER level ≤ 4E-4% RTP on the wide range neutron flux channels.	A.1	Restore channel to OPERABLE status.	Prior to increasing THERMAL POWER
B. Two required source range neutron flux channels inoperable with THERMAL POWER level ≤ 4E-4% RTP on the wide range neutron flux channels.	B.1	Suspend operations involving positive reactivity changes.	Immediately
	AND		
	B.2	Initiate action to insert all CONTROL RODS.	Immediately
	AND		
	B.3	Open CONTROL ROD drive trip breakers.	1 hour
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.4 Verify SDM to be within the limit specified in the COLR.	1 hour AND Once per 12 hours thereafter
C. One or more required source range neutron flux channel(s) inoperable with THERMAL POWER level > 4E-4% RTP on the wide range neutron flux channels	C.1 Initiate action to restore affected channel(s) to OPERABLE status.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3 9 1	Perform CHANNEL CHECK.	12 hours
SR 3.3.9.2	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	 18 months

3.3 INSTRUMENTATION

3.3.10 Wide Range Neutron Flux

LCO 3.3.10 Two wide range neutron flux channels shall be OPERABLE.

APPLICABILITY: MODE 2,
MODES 3, 4, and 5 with any control rod drive (CRD) trip breaker in the closed position and the CRD System capable of rod withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required channel inoperable.	A.1	Reduce THERMAL POWER to < 4E-4% RTP.	2 hours
B. Two required channels inoperable.	B.1	Suspend operations involving positive reactivity changes.	Immediately
	AND		
	B.2	Open CRD trip breakers.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.10.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.10.2	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	18 months
SR 3.3.10.3	Verify at least one decade overlap between source range and wide range neutron flux channels.	Once each reactor startup prior to the source range indication exceeding 10^5 cps if not performed within the previous 7 days

3.3 INSTRUMENTATION

3.3.11 Main Steam Line Break (MSLB) Detection and Main Feedwater (MFW) Isolation Instrumentation

LCO 3.3.11 Three MSLB Detection and MFW Isolation instrumentation channels per steam generator (SG) shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with main steam header pressure ≥ 700 psig except when all main feedwater control valves (MFCVs) and startup feedwater control valves (SFCVs) are closed.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each SG (MFW Isolation Function).

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MFW Isolation Functions with one channel inoperable.	A.1 Place channel(s) in trip.	4 hours
B. One or more MFW Isolation Functions with two or more channels inoperable. OR Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2.1 Reduce main steam header pressure to < 700 psig. OR B.2.2 Close all MFCVs and SFCVs.	12 hours 18 hours 18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.11.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.11.2	----------NOTE---------- Only applicable when modifications are implemented that allow online testing. ---------- Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.11.3	Perform CHANNEL CALIBRATION.	18 months

3.3 INSTRUMENTATION

3.3.12 Main Steam Line Break (MSLB) Detection and Main Feedwater (MFW) Isolation Manual Initiation

LCO 3.3.12 Two MSLB Detection and MFW Isolation Manual Initiation switches shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with main steam header pressure ≥ 700 psig except when all main feedwater control valves (MFCVs) and startup feedwater control valves (SFCVs) are closed.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One manual initiation switch inoperable.	A.1	Restore manual initiation switch to OPERABLE status.	72 hours
B Two manual initiation switches inoperable. OR Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2.1	Reduce main steam header pressure to < 700 psig.	18 hours
	OR		
	B.2.2	Close all MFCVs and SFCVs.	18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.12.1	Perform CHANNEL FUNCTIONAL TEST.	18 months

3.3 INSTRUMENTATION

3.3.13 Main Steam Line Break (MSLB) Detection and Main Feedwater (MFW) Isolation Logic Channels

LCO 3.3.13 Two MSLB Detection and MFW Isolation Logic channels shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with main steam header pressure ≥ 700 psig except when all main feedwater control valves (MFCVs) and startup feedwater control valves (SFCVs) are closed.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One logic channel inoperable	A.1 Restore channel to OPERABLE status.	72 hours
B. Two logic channels inoperable OR Required Action and associated Completion Time of Condition A not met	B.1 Be in MODE 3. AND B.2.1 Reduce main steam header pressure to < 700 psig. OR B.2.2 Close all MFCVs and SFCVs.	12 hours 18 hours 18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.13.1	Perform CHANNEL FUNCTIONAL TEST.	18 months

3.3 INSTRUMENTATION

3.3.14 Emergency Feedwater (EFW) Pump Initiation Circuitry

LCO 3.3.14 Two loss of main feedwater (LOMF) pump instrumentation channels for each automatic initiation circuit, and an automatic and manual initiation circuit for each EFW pump shall be OPERABLE.

----------NOTE----------
The EFW pump automatic initiation circuit is not required to be OPERABLE in MODES 3 and 4.

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

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each EFW pump initiation circuit.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more EFW pump automatic initiation circuits with one LOMF channel inoperable.	A.1 Place channel(s) in trip.	1 hour
B. One or more required EFW pump initiation circuits inoperable. OR Required Action and associated Completion Time not met.	B.1 Declare the affected EFW pump(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.14.1	Perform CHANNEL FUNCTIONAL TEST for each LOMF pump instrumentation channel.	31 days
SR 3.3.14.2	Perform CHANNEL FUNCTIONAL TEST for each manual initiation circuit.	92 days
SR 3.3.14.3	Perform CHANNEL FUNCTIONAL TEST for each automatic initiation circuit.	18 months
SR 3.3.14.4	Perform CHANNEL CALIBRATION for each LOMF pump instrumentation channel.	18 months

3.3 INSTRUMENTATION

3.3.15 Turbine Stop Valve (TSV) Closure

LCO 3.3.15 Two TSV Closure channels shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3 except when all TSVs are closed.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more TSV Closure channel(s) inoperable.	A.1 Declare the TSVs inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.15.1	Perform CHANNEL FUNCTIONAL TEST.	31 days

3.3 INSTRUMENTATION

3.3.16 Reactor Building (RB) Purge Isolation – High Radiation

LCO 3.3.16 One channel of Reactor Building Purge Isolation – High Radiation shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One channel inoperable.	A.1	Place and maintain RB purge valves in closed positions.	Immediately
	OR		
	A.2.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2.2	Suspend movement of irradiated fuel assemblies within the containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.16.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.16.2	Perform CHANNEL FUNCTIONAL TEST.	Once each refueling outage prior to CORE ALTERATIONS or movement of irradiated fuel assemblies within containment
SR 3.3.16.3	Perform CHANNEL CALIBRATION.	18 months

3.3 INSTRUMENTATION

3.3.17 Emergency Power Switching Logic (EPSL) Automatic Transfer Function

LCO 3.3.17 Two channels of the EPSL Automatic Transfer Function shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 ----------NOTE---------- The Completion Time is reduced when in Condition L of LCO 3.8.1. ---------- Restore channel to OPERABLE status.	24 hours
B. Required Action and associated Completion Time not met	B.1 Be in MODE 3.	12 hours
	AND	
	B.2 Be in MODE 5.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.17.1	Perform CHANNEL FUNCTIONAL TEST.	18 months

3.3 INSTRUMENTATION

3.3.18 Emergency Power Switching Logic (EPSL) Voltage Sensing Circuits

LCO 3.3.18 Three channels of each of the following EPSL voltage sensing circuits shall be OPERABLE:

a. Startup Transformer;
b. Standby Bus 1;
c. Standby Bus 2; and
d. Auxiliary Transformer.

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

1. If both N breakers are open, Auxiliary Transformer voltage sensing circuits are not required to be OPERABLE.

2. When not in MODES 1, 2, 3 and 4, only EPSL voltage sensing circuit(s) associated with required AC power source(s) are required to be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required circuits with one channel inoperable.	A.1 ----------NOTE---------- The Completion Time is reduced when in Condition L of LCO 3.8.1. ---------- Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met in MODES 1, 2, 3, and 4.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	12 hours 84 hours
C. Two or more channels of a required circuit inoperable when not in MODES 1, 2, 3, and 4. OR Required Action and associated Completion Time not met when not in MODES 1, 2, 3, and 4.	C.1 Declare affected AC power source(s) inoperable.	Immediately
D. Required Action and associated Completion Time not met during movement of irradiated fuel assemblies.	D.1 Suspend movement of irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.18.1	Perform CHANNEL FUNCTIONAL TEST.	18 months

3.3 INSTRUMENTATION

3.3.19 Emergency Power Switching Logic (EPSL) 230 kV Switchyard Degraded Grid Voltage Protection (DGVP)

LCO 3.3.19 Three DGVP voltage sensing channels and two DGVP actuation logic channels shall be OPERABLE.

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

ACTIONS

----------NOTE----------
The Completion Times for Required Actions A and B are reduced when in Condition L of LCO 3.8.1.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One voltage sensing channel inoperable.	A.1	Place channel in trip.	72 hours
B. One actuation logic channel inoperable.	B.1	Restore channel to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 5.	84 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two or more voltage sensing channels inoperable. OR Two actuation logic channels inoperable.	D.1 Declare the overhead emergency power path inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.19.1	Perform a CHANNEL FUNCTIONAL TEST.	18 months
SR 3.3.19.2	Perform a CHANNEL CALIBRATION of the voltage sensing channel with the setpoint allowable value as follows: Degraded voltage ≥ 226 kV and ≤ 229 kV with a time delay of 9 seconds ± 1 second.	18 months

3.3 INSTRUMENTATION

3.3.20 Emergency Power Switching Logic (EPSL) CT-5 Degraded Grid Voltage Protection (DGVP)

LCO 3.3.20 Three CT-5 DGVP voltage sensing channels and two CT-5 DGVP actuation logic channels shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4 when the Central Switchyard is energizing the standby buses.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One voltage sensing channel inoperable.	A.1	Place channel in trip.	72 hours
B. One actuation logic channel inoperable.	B.1	Restore channel to OPERABLE status.	72 hours
C. Two or more voltage sensing channels inoperable. OR Two actuation logic channels inoperable. OR Required Action and associated Completion Time of Condition A or B not met.	C.1	Open SL breakers.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.20.1	Perform a CHANNEL FUNCTIONAL TEST.	18 months
SR 3.3.20.2	Perform a CHANNEL CALIBRATION of the voltage sensing channel with the setpoint allowable value as follows: a. Degraded voltage ≥ 4143 V and ≤ 4185 V with a time delay of 9 seconds ± 1 second for the first level undervoltage inputs; and b. Degraded voltage ≥ 3871 V and ≤ 3901 V for the second level undervoltage inputs.	18 months

3.3 INSTRUMENTATION

3.3.21 Emergency Power Switching Logic (EPSL) Keowee Emergency Start Function

LCO 3.3.21 Two channels of the EPSL Keowee Emergency Start Function shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One channel inoperable.	A.1	----------NOTE---------- The Completion Time is reduced when in Condition L of LCO 3.8.1. ---------- Restore channel to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 5.	84 hours
C. Two channels inoperable	C.1	Declare both Keowee Hydro Units inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.21.1	Perform CHANNEL FUNCTIONAL TEST.	18 months

3.3 INSTRUMENTATION

3.3.22 Emergency Power Switching Logic (EPSL) Manual Keowee Emergency Start Function

LCO 3.3.22 One channel of the EPSL Manual Keowee Emergency Start Function shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required channel inoperable.	A.1 Declare both Keowee Hydro Units inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.22.1	Perform CHANNEL FUNCTIONAL TEST.	12 months

3.3 INSTRUMENTATION

3.3.23 Main Feeder Bus Monitor Panel (MFBMP)

LCO 3.3.23 Three MFBMP undervoltage sensing relay channels per bus and two MFBMP undervoltage actuation logic channels shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Separate Condition entry is allowed. ---------- One voltage sensing channel inoperable on one or both MFBs.	A.1 Place channel in trip.	7 days
B. One actuation logic channel inoperable.	B.1 Restore channel to OPERABLE status.	7 days
C. ---------NOTE--------- Separate Condition entry is allowed. ---------- Two or more voltage sensing channels inoperable on one or both MFBs. <u>OR</u> Two actuation logic channels inoperable.	C.1 Restore two of three undervoltage sensing channels to OPERABLE status. <u>AND</u> C.2 Restore one logic channel to OPERABLE status.	24 hours 24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.23.1	Perform a CHANNEL FUNCTIONAL TEST.	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 loop pressure, loop average temperature, and RCS total flow rate shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1 during steady state operation.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	----------NOTE---------- With three RCPs operating, the limits are applied to the loop with the highest pressure. ---------- Verify RCS loop pressure is within limits specified in the COLR.	12 hours
SR 3.4.1.2	----------NOTE---------- With three RCPs operating, the limits are applied to the loop with the lowest loop average temperature for the condition where there is a 0°F ΔTc setpoint. ---------- Verify RCS loop average temperature is within limits specified in the COLR.	12 hours
SR 3.4.1.3	Verify RCS total flow is within limits specified in the COLR.	12 hours
SR 3.4.1.4	----------NOTE---------- Not required to be performed until 7 days after stable thermal conditions are established in the higher power range of MODE 1. ---------- Verify by measurement RCS total flow rate is within limit specified in the COLR.	18 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2 Each RCS loop average temperature shall be ≥ 525°F.

APPLICABILITY: MODE 1,
MODE 2 with $k_{eff} \geq 1.0$.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	Verify RCS average temperature in each loop ≥ 525°F.	----------NOTE---------- Only required if any RCS loop average temperature < 530°F. ---------- 30 minutes thereafter

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3 RCS pressure and temperature shall be within the limits specified in Figures 3.4.3-1 and 3.4.3-2 for Unit 1; Figures 3.4.3-4 and 3.4.3-5 for Unit 2; and Figures 3.4.3-7 and 3.4.3-8 for Unit 3. RCS heatup and cooldown rates and allowable RC pump combinations shall be maintained within the limits specified in Tables 3.4.3-1 and 3.4.3-2.

NOTES

1. For leak tests of the RCS, leak tests of connected systems required by Specification 5.5.3 where RCS allowable combinations of temperature and pressure are controlling the RCS may be pressurized to within the limits of Figure 3.4.3-3 for Unit 1, Figure 3.4.3-6 for Unit 2 and Figure 3.4.3-9 for Unit 3.

2. For thermal steady state system hydro tests required by ASME Section XI the RCS may be pressurized to within the limits of Specification 2.1.2 and Figure 3.4.3-3 for Unit 1, Figure 3.4.3-6 for Unit 2 and Figure 3.4.3-9 for Unit 3.

3. Not applicable to the pressurizer.

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	12 hours 36 hours
C. ----------NOTE---------- Required Action C.2 shall be completed whenever this Condition is entered. ---------- Requirements of LCO not met in other than MODE 1, 2, 3, or 4.	C.1 Initiate action to restore parameter(s) to within limit. 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 leak and hydrostatic testing. ---------- Verify RCS pressure, RCS temperature and RCS heatup and cooldown rates are within limits.	 30 minutes

Table 3.4.3-1 (page 1 of 1)
Operational Requirements for Unit Heatup

CONSTRAINT	RC TEMPERATURE[a]	MAXIMUM HEATUP RATE	ALLOWED PUMP COMBINATION
RC Temperature[a]	T < 280°F T ≥ 280°F	50°F/hr 100°F/hr	NA NA
RC Pumps	T < 250°F T ≥ 250°F	NA NA	≤ two pumps Any

(a) RC Temperature is cold leg temperature if one or more RC pumps are in operation; otherwise it is the LPI cooler outlet temperature.

Table 3.4.3-2 (page 1 of 1)
Operational Requirements for Unit Cooldown

CONSTRAINT	RC TEMPERATURE[a]	MAXIMUM COOLDOWN RATE[b]	ALLOWED PUMP COMBINATION
RC Temperature[a]	T ≥ 280°F	≤ 50°F in any 1/2 hour period	NA
	150°F ≤ T < 280°F	≤ 25°F in any 1/2 hour period	NA
	T< 150°F	≤ 10°F in any one hour period	NA
	RCS depressurized[c]	≤ 50°F in any one hour period	NA
RC Pumps	T ≥ 250°F	NA	Any
	T < 250°F	NA	≤ two pumps

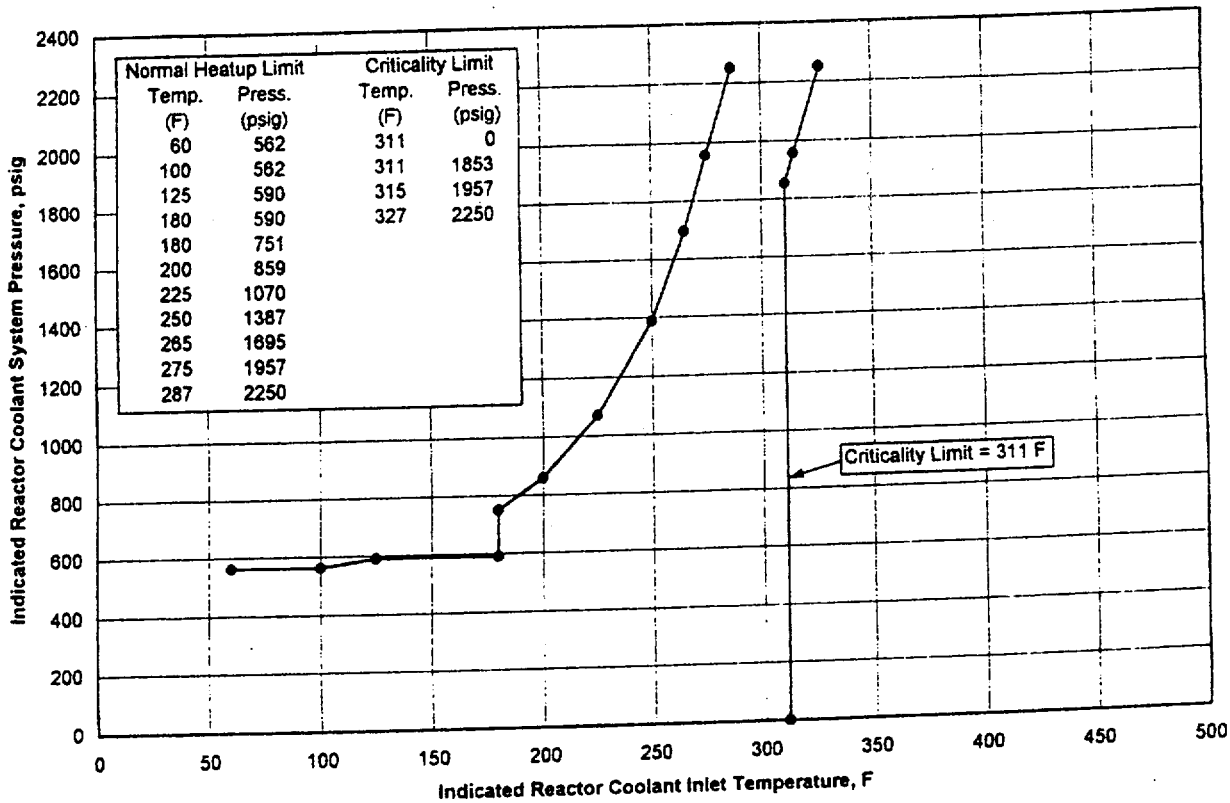
(a) RC Temperature is cold leg temperature if one or more RC pumps are in operation or if on natural circulation cooldown; otherwise it is the LPI cooler outlet temperature.

(b) These rate limits must be applied to the change in temperature indication from cold leg temperature to LPI cooler outlet temperature per Note (a).

(c) When the RCS is depressurized such that all three of the following conditions exist:

a) RCS temperature < 200°F,
b) RCS pressure < 50 psig,
c) All RC Pumps off,

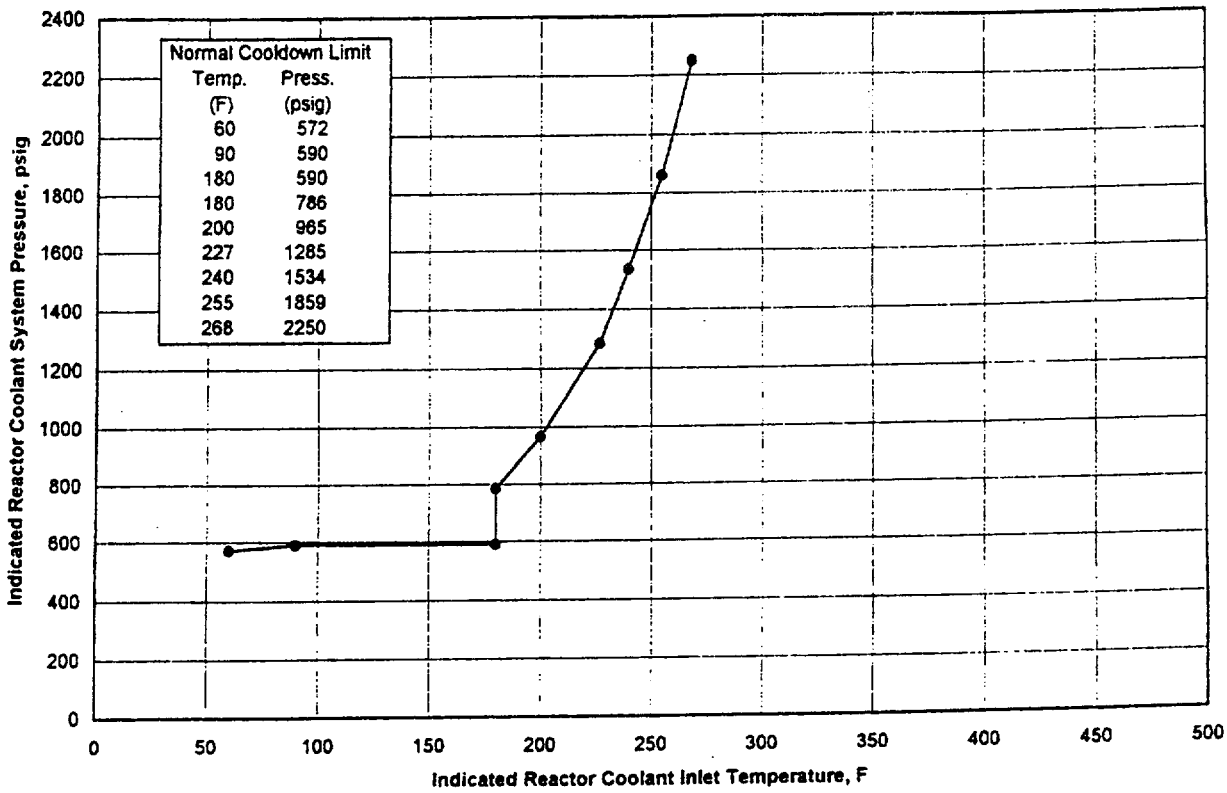
the maximum cooldown rate shall be relaxed to ≤ 50°F in any 1 hour period.



The regions of acceptable operation are below and to the right of the limit curves. Margins are included for the pressure differential between point of system pressure measurement and the pressure on the reactor vessel region controlling the limit curve. Margins for instrument error are not included.

Note: Heatup and Cooldown rate restrictions and Reactor Coolant Pump combination restrictions during Heatup and Cooldown are required, as identified in text.

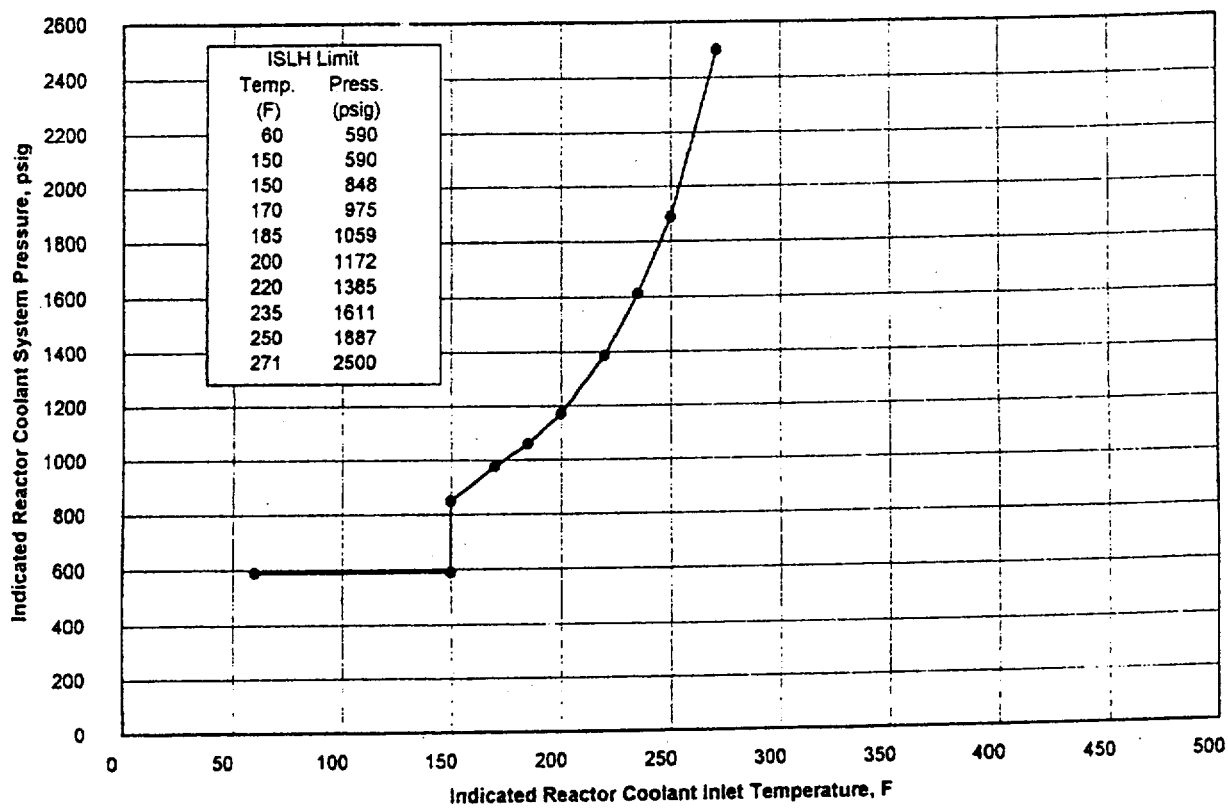
Figure 3.4.3-1 (page 1 of 1)
RCS Normal Operational Heatup Limitations
Applicable for the First 33 EFPY - Oconee Nuclear Station Unit 1



The regions of acceptable operation are below and to the right of the limit curves. Margins are included for the pressure differential between point of system pressure measurement and the pressure on the reactor vessel region controlling the limit curve. Margins for instrument error are not included.

Note: Heatup and Cooldown rate restrictions and Reactor Coolant Pump combination restrictions during Heatup and Cooldown are required, as identified in text.

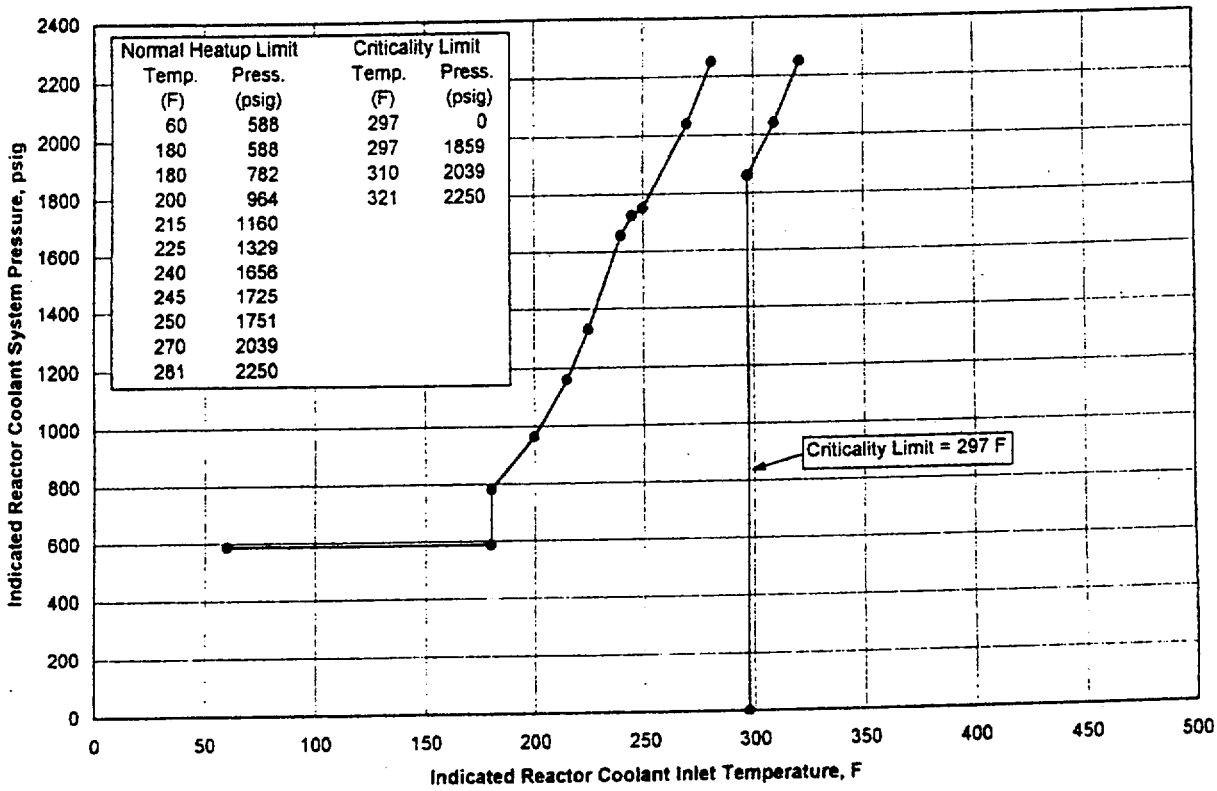
Figure 3.4.3-2 (page 1 of 1)
RCS Normal Operational Cooldown Limitations
Applicable for the First 33 EFPY - Oconee Nuclear Station Unit 1



The regions of acceptable operation are below and to the right of the limit curves. Margins are included for the pressure differential between point of system pressure measurement and the pressure on the reactor vessel region controlling the limit curve. Margins for instrument error are not included.

Note: Heatup and Cooldown rate restrictions and Reactor Coolant Pump combination restrictions during Heatup and Cooldown are required, as identified in text.

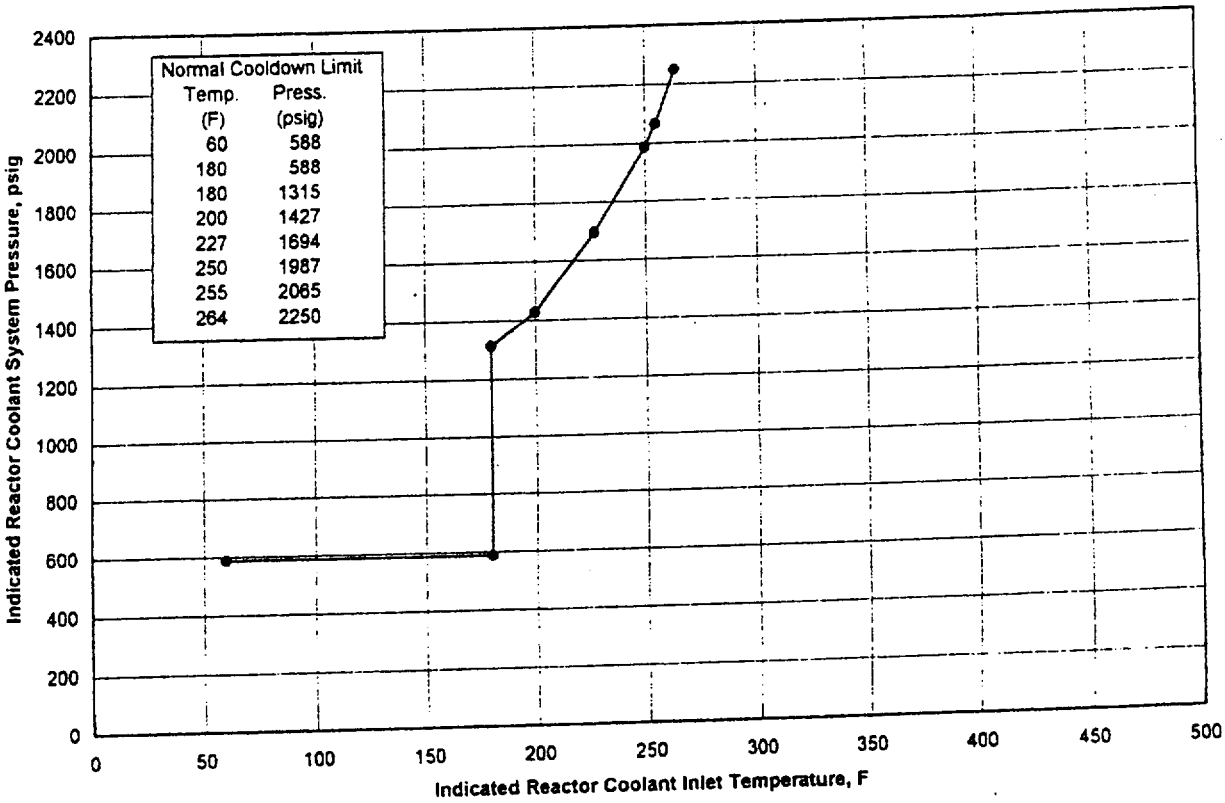
Figure 3.4.3-3 (page 1 of 1)
RCS Leak and Hydrostatic Test Heatup and Cooldown Limitations
Applicable for the First 33 EFPY - Oconee Nuclear Station Unit 1



The regions of acceptable operation are below and to the right of the limit curves. Margins are included for the pressure differential between point of system pressure measurement and the pressure on the reactor vessel region controlling the limit curve. Margins for instrument error are not included.

Note: Heatup and Cooldown rate restrictions and Reactor Coolant Pump combination restrictions during Heatup and Cooldown are required, as identified in text.

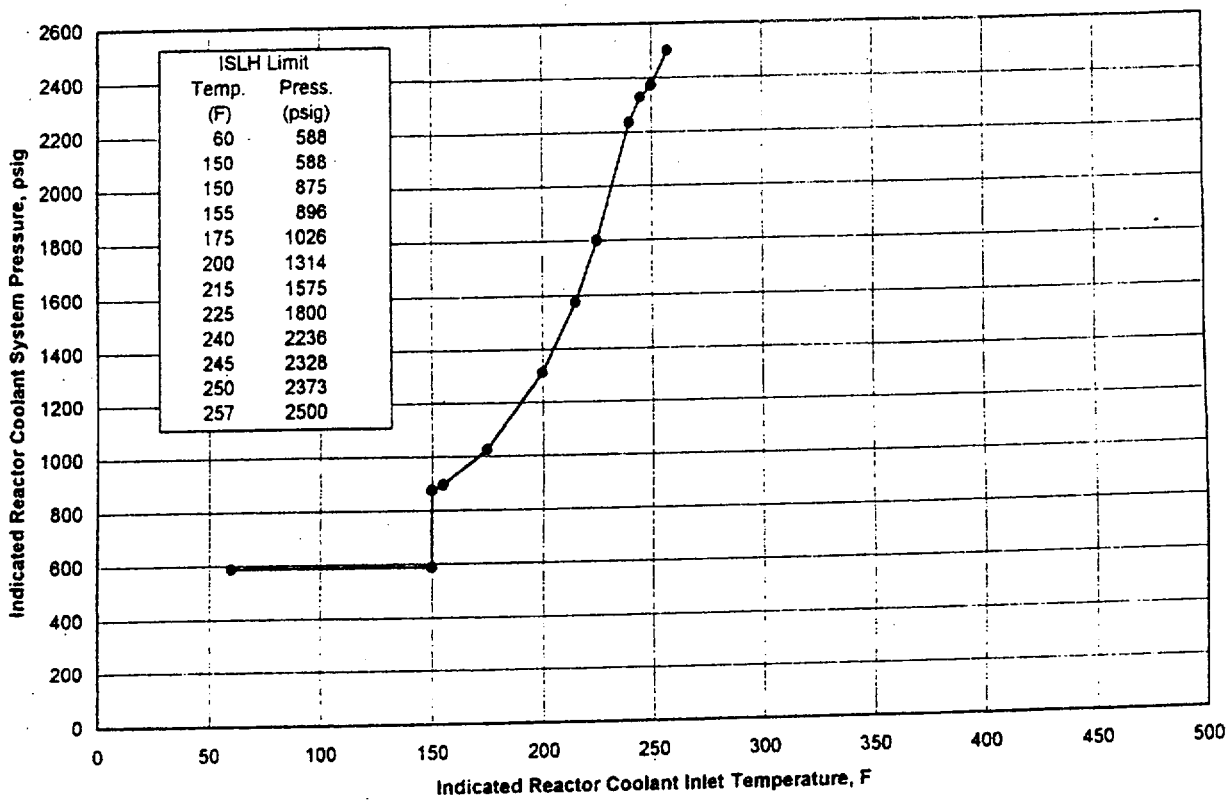
Figure 3.4.3-4 (page 1 of 1)
RCS Normal Operational Heatup Limitations
Applicable for the First 33 EFPY - Oconee Nuclear Station Unit 2



The regions of acceptable operation are below and to the right of the limit curves. Margins are included for the pressure differential between point of system pressure measurement and the pressure on the reactor vessel region controlling the limit curve. Margins for instrument error are not included.

Note: Heatup and Cooldown rate restrictions and Reactor Coolant Pump combination restrictions during Heatup and Cooldown are required, as identified in text.

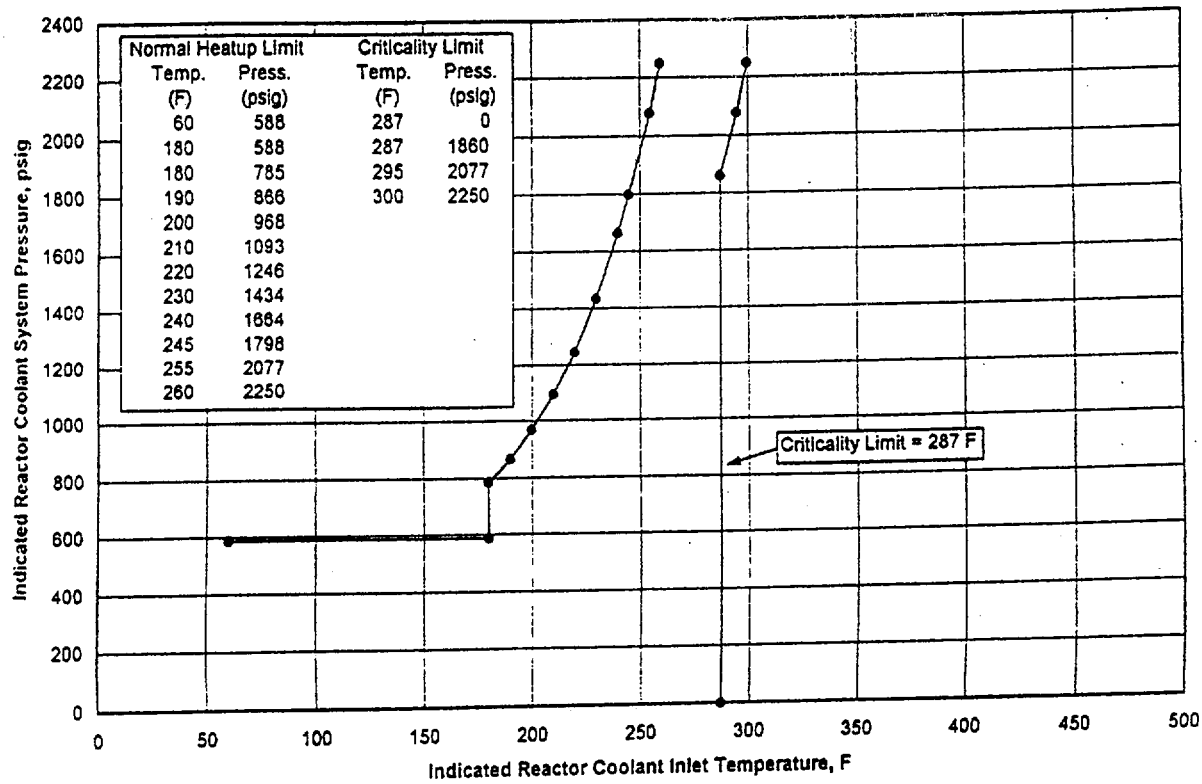
Figure 3.4.3-5 (page 1 of 1)
RCS Normal Operational Cooldown Limitations
Applicable for the First 33 EFPY - Oconee Nuclear Station Unit 2



The regions of acceptable operation are below and to the right of the limit curves. Margins are included for the pressure differential between point of system pressure measurement and the pressure on the reactor vessel region controlling the limit curve. Margins for instrument error are not included.

Note: Heatup and Cooldown rate restrictions and Reactor Coolant Pump combination restrictions during Heatup and Cooldown are required, as identified in text.

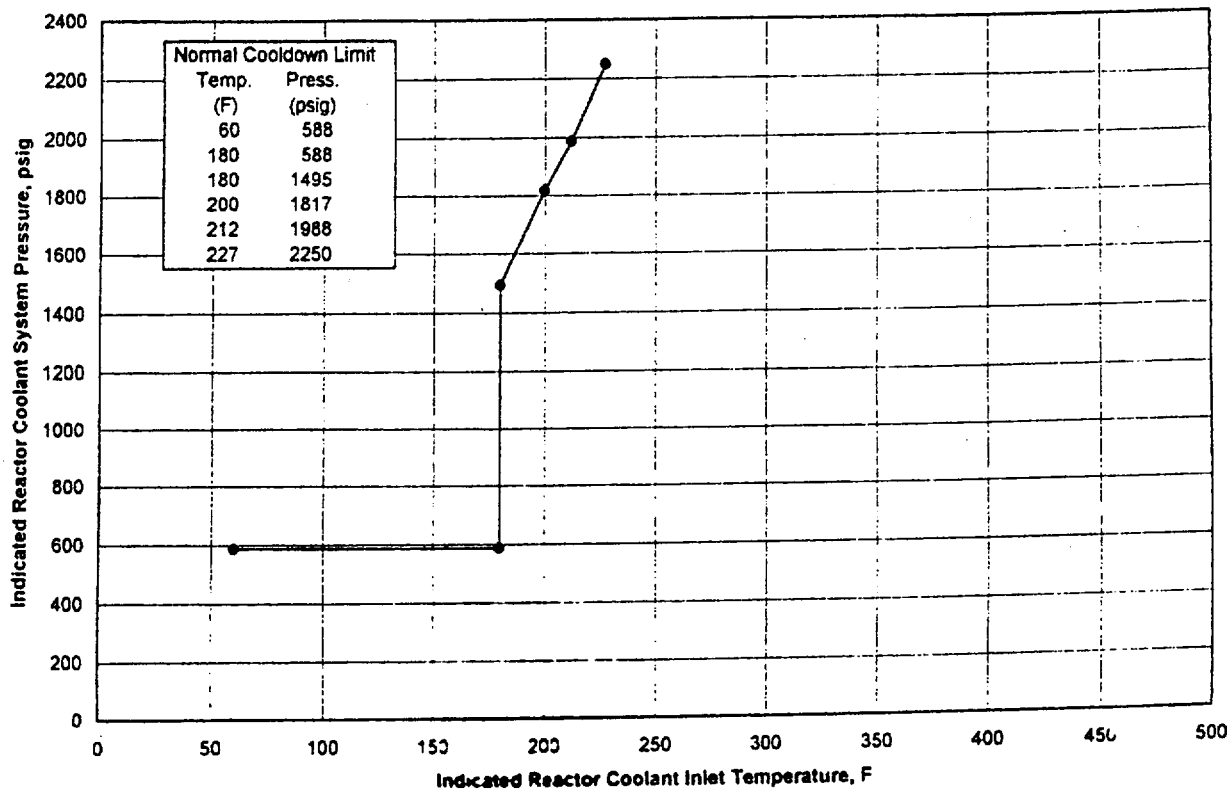
Figure 3.4.3-6 (page 1 of 1)
RCS Leak and Hydrostatic Test Heatup and Cooldown Limitations
Applicable for the First 33 EFPY - Oconee Nuclear Station Unit 2



The regions of acceptable operation are below and to the right of the limit curves. Margins are included for the pressure differential between point of system pressure measurement and the pressure on the reactor vessel region controlling the limit curve. Margins for instrument error are not included.

Note: Heatup and Cooldown rate restrictions and Reactor Coolant Pump combination restrictions during Heatup and Cooldown are required, as identified in text.

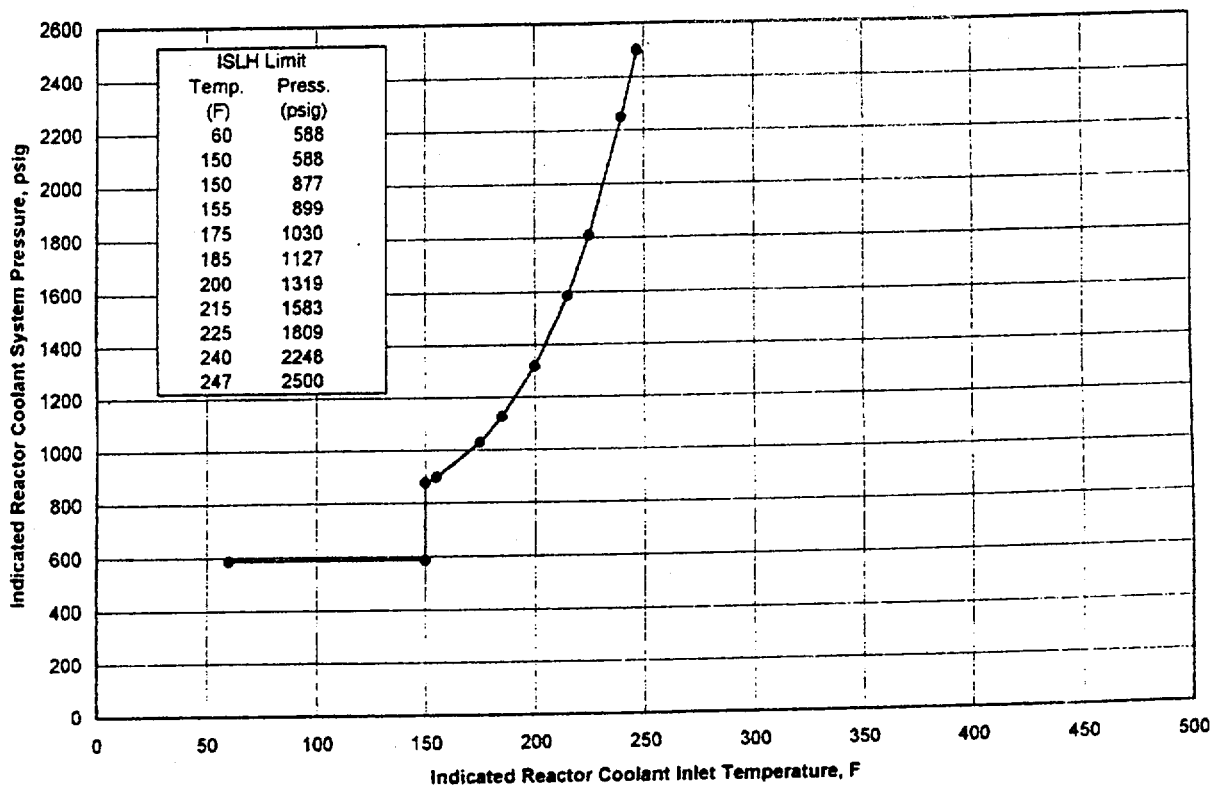
Figure 3.4.3-7 (page 1 of 1)
RCS Normal Operational Heatup Limitations
Applicable for the First 33 EFPY - Oconee Nuclear Station Unit 3



The regions of acceptable operation are below and to the right of the limit curves. Margins are included for the pressure differential between point of system pressure measurement and the pressure on the reactor vessel region controlling the limit curve. Margins for instrument error are not included.

Note: Heatup and Cooldown rate restrictions and Reactor Coolant Pump combination restrictions during Heatup and Cooldown are required, as identified in text.

Figure 3.4.3-8 (page 1 of 1)
RCS Normal Operational Cooldown Limitations
Applicable for the First 33 EFPY - Oconee Nuclear Station Unit 3



The regions of acceptable operation are below and to the right of the limit curves. Margins are included for the pressure differential between point of system pressure measurement and the pressure on the reactor vessel region controlling the limit curve. Margins for instrument error are not included.

Note: Heatup and Cooldown rate restrictions and Reactor Coolant Pump combination restrictions during Heatup and Cooldown are required, as identified in text.

Figure 3.4.3-9 (page 1 of 1)
RCS Leak and Hydrostatic Test Heatup and Cooldown Limitations
Applicable for the First 33 EFPY - Oconee Nuclear Station Unit 3

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops – MODES 1 and 2

LCO 3.4.4 Two RCS Loops shall be in operation, with:

a. Four reactor coolant pumps (RCPs) operating; or

b. Three RCPs operating and THERMAL POWER restricted to 75% RTP.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify required RCS loops are 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 at least one RCS loop shall be in operation.

---NOTE---

All reactor coolant pumps (RCPs) may not be in operation for ≤ 8 hours per 24 hour period for the transition to or from the Decay Heat Removal System, and all RCPs may not be in operation for ≤ 1 hour per 8 hour period for any other reason, 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 RCS loop inoperable.	A.1	Restore RCS loop to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 4.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two RCS loops inoperable. OR Required RCS loop not 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 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 consisting of any combination of RCS loops and decay heat removal (DHR) loops shall be OPERABLE and at least one loop shall be in operation.

---NOTE---

1. All reactor coolant pumps (RCPs) may not be in operation for ≤ 8 hours per 24 hour period for the transition to or from the DHR System, and all RCPs and DHR pumps may not be in operation for ≤ 1 hour per 8 hour period for any other reason, 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. A DHR loop may be considered OPERABLE if capable of being manually realigned to the DHR mode of operation.

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required loop inoperable.	A.1	Initiate action to restore a second loop to OPERABLE status.	Immediately
	AND		
	A.2	---Note--- Only required if DHR loop is OPERABLE. --- Be in MODE 5.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two required loops inoperable. OR Required loop not in operation.	B.1 Suspend all operations involving a reduction in RCS boron concentration. AND B.2 Initiate action to restore one loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required DHR or RCS loop is in operation.	12 hours
SR 3.4.6.2	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 decay heat removal (DHR) loop shall be OPERABLE and in operation, and either:

a. One additional DHR loop shall be OPERABLE; or

b. The secondary side water level of each steam generator (SG) shall be ≥ 50%.

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

1. The DHR pump of the loop in operation may not be in operation 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 DHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other DHR loop is OPERABLE and in operation.

3. All DHR loops may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation.

4. A DHR loop may be considered OPERABLE if capable of being manually realigned to the DHR mode of operation.

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required DHR loop inoperable. AND Any required SG with secondary side water levels not within limits.	A.1 Initiate action to restore a second DHR loop to OPERABLE status. OR A.2 Initiate action to restore SG secondary side water levels to within limits.	Immediately Immediately
B. No required DHR loops OPERABLE. OR Required DHR loop not in operation.	B.1 Suspend all operations involving a reduction in RCS boron concentration. AND B.2 Initiate action to restore one DHR loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify required DHR loop is in operation.	12 hours
SR 3.4.7.2	Verify required SG secondary side water levels are ≥ 50%.	12 hours
SR 3.4.7.3	Verify correct breaker alignment and indicated power available to the required DHR 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 decay heat removal (DHR) loops shall be OPERABLE and one DHR loop shall be in operation.

---NOTES---

1. All DHR pumps may not be in operation for ≤ 15 minutes when switching from one loop to another or for testing provided:

   a. The maximum RCS temperature is ≤ 140°F;

   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 DHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other DHR loop is OPERABLE and in operation.

3. A DHR loop may be considered OPERABLE if capable of being manually realigned to the DHR mode of operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Two DHR loops inoperable. OR Required DHR loop not in operation.	B.1	Suspend all operations involving reduction in RCS boron concentration.	Immediately
	AND		
	B.2	Initiate action to restore one DHR loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify required DHR loop is in operation.	12 hours
SR 3.4.8.2	Verify correct breaker alignment and indicated power available to the required DHR 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 ≤ 285 inches; and

b. A minimum of 126 kW of pressurizer heaters OPERABLE and capable of being powered from an emergency power supply.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS temperature > 325°F.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Pressurizer water level not within limit.	A.1	Restore level to within limit.	1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 3 with RCS temperature ≤ 325°F.	18 hours
C. Capacity of pressurizer heaters capable of being powered by emergency power supply less than limit.	C.1	Restore pressurizer heater capability.	72 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.	12 hours
	AND		
	D.2	Reduce RCS temperature to ≤ 325°F.	18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level ≤ 285 inches.	12 hours
SR 3.4.9.2	Verify capacity of required pressurizer heaters and associated power supplies are ≥ 126 kW.	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 ≥ 2425 psig and ≤ 2575 psig.

APPLICABILITY: MODES 1 and 2,
MODE 3 with all RCS cold leg temperatures > 325°F.

---NOTE---
The lift settings are not required to be within the LCO limits for entry into the applicable portions of MODE 3 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 36 hours following entry into the applicable portions of 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 pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 3 with any RCS cold leg temperature ≤ 325°F.	12 hours 18 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 RCS Specific Activity

LCO 3.4.11 The specific activity of the reactor coolant shall be within limits.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS average temperature ≥ 500°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 μCi/gm.	——NOTE—— LCO 3.0.4 is not applicable. ————————	
	A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.11-1.	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. Required Action and associated Completion Time of Condition A not met OR DOSE EQUIVALENT I-131 in unacceptable region of Figure 3.4.11-1.	B.1 Be in MODE 3 with RCS average temperature < 500°F.	12 hours

(continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Gross specific activity of the coolant not within limit.	C.1 Be in MODE 3 with RCS Average Temperature < 500°F.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	Verify reactor coolant gross specific activity ≤ 100/$\bar{E}$ μCi/gm.	7 days
SR 3.4.11.2	----------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 3.4.11.3	----------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 $\bar{E}$.	184 days

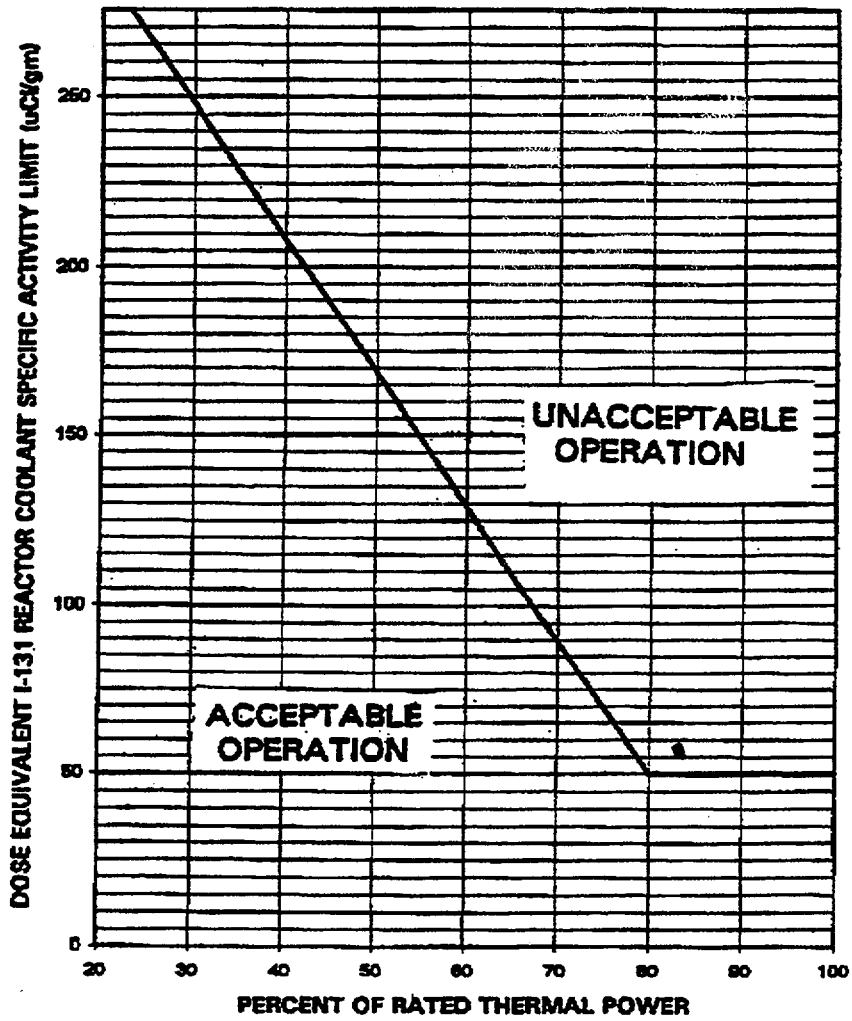


Figure 3.4.11-1 (page 1 of 1)
Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity Limit Versus Percent of RATED TERMAL POWER With Reactor Coolant Specific Activity > 1.0 μCi/gm DOSE EQUIVALENT I-131

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 high pressure injection (HPI) deactivated, and the core flood tanks (CFTs) isolated and:

a. An OPERABLE power operated relief valve (PORV) with a lift setpoint of ≤ 535 psig; and

b. Administrative controls implemented that assure ≥ 10 minutes are available for operator action to mitigate an LTOP event.

APPLICABILITY: MODE 3 when any RCS cold leg temperature is ≤ 325°F,
MODES 4, 5, and 6 when an RCS vent path capable of mitigating the most limiting LTOP event is not open.

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

1. CFT isolation is only required when CFT pressure is greater than or equal to the maximum RCS pressure for the existing RCS temperature allowed by the pressure and temperature limit curves provided in Specification 3.4.3.

2. The PORV is not required to be OPERABLE when no HPI pumps are running and RCS pressure < 100 psig.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. HPI activated.	A.1	Initiate action to deactivate HPI.	Immediately
B. A CFT not isolated when CFT pressure is greater than or equal to the maximum RCS pressure for existing temperature allowed by Specification 3.4.3.	B.1	Isolate affected CFT.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	C.1	Be in MODE 4 with RCS temperature > 200°F.	12 hours
	OR		
	C 2	Depressurize affected CFT to < 373 psig.	12 hours
D. PORV inoperable.	D 1	Restore PORV to OPERABLE status.	1 hour
E. Required Action and associated Completion Time of Condition D not met.	E 1	Be in MODE 3 with RCS average temperature > 325°F.	23 hours
	OR		
	E.2	Depressurize RCS to < 100 psig.	35 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Administrative Controls that assure ≥ 10 minutes are available to mitigate consequences of an LTOP event not implemented.	F.1	Provide compensatory measures to monitor for initiation of an LTOP event.	4 hours
G. Required Action and associated Completion Time of Condition F not met.	G.1	Depressurize the RCS and establish an RCS vent path capable of mitigating the most limiting LTOP event.	12 hours
H. Administrative Controls that assure ≥ 10 minutes are available to mitigate the consequences of an LTOP event not implemented and PORV inoperable. OR LTOP System inoperable for any reason other than Condition A through Condition G.	H.1 OR H.2	Restore system to OPERABLE status. Depressurize RCS and establish RCS vent path capable of mitigating the most limiting LTOP event.	1 hour 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify HPI is deactivated.	12 hours
SR 3.4.12.2	Verify each CFT is isolated.	12 hours
SR 3.4.12.3	Verify pressurizer level is ≤ level necessary to assure ≥ 10 minutes are available for operator action to mitigate an LTOP event.	30 minutes during RCS heatup and cooldown AND 12 hours
SR 3.4.12.4	Verify PORV block valve is open.	12 hours
SR 3.4.12.5	Perform CHANNEL FUNCTIONAL TEST for PORV.	Within 12 hours after decreasing RCS temperature to ≤ 325°F AND 31 days thereafter

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.6	Verify Administrative Controls, other than limits for pressurizer level, that assure ≥ 10 minutes are available for operator action to mitigate an LTOP event are implemented for the following: a. RCS pressure when RCS temperature is < 325°F; b. Makeup flow rate; c. Alarms; d. High pressure Nitrogen System; and e. Verify pressurizer heater bank 3 or 4 is deactiviated.	12 hours
SR 3.4.12.7	Perform CHANNEL CALIBRATION for PORV.	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. 300 gallon per day total primary to secondary LEAKAGE through all steam generators (SGs); and

e. 150 gallon 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.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	----------NOTE---------- Not required to be performed until 12 hours after establishment of steady state operation. ---------- Evaluate RCS Operational LEAKAGE.	72 hours
SR 3.4.13.2	Verify steam generator 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 the following RCS PIV shall be within limits:

a. CF-12,
b. CF-14,
c. LP-47, and
d. LP-48

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

ACTIONS

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

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

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more flow paths with leakage from one or more required 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 non-automatic power operated, 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 non-automatic power operated, deactivated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	AND	
	B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	----------NOTES---------- Not required to be performed in MODES 3 and 4. ---------- Verify leakage from each required 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 ≥ 2150 psia and ≤ 2190 psia.	18 months AND Prior to entering MODE 2 whenever the unit has been in MODE 5 for ≥ 7 days, if leakage testing has not been performed in the previous 9 months.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment normal sump level indication; and

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

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

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Required containment sump level indication inoperable.	A.1	----------NOTE---------- Not required until 12 hours after establishment of steady state operation. ----------	
		Perform SR 3.4.13.1.	Once per 24 hours
	AND		
	A.2	Restore required containment sump level indication to OPERABLE status.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required containment atmosphere radioactivity monitor inoperable.	B.1.1	Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR		
	B.1.2	----------NOTE---------- Not required until 12 hours after establishment of steady state operation. ----------	
		Perform SR 3.4.13.1.	Once per 24 hours
	AND		
	B.2	Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
C. Required Action and associated Completion Time not met	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 5.	36 hours
D. Both required instrument functions inoperable.	D.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of required containment atmosphere radioactivity monitor.	12 hours
SR 3.4.15.2	Perform CHANNEL FUNCTIONAL TEST of required containment atmosphere radioactivity monitor.	92 days
SR 3.4.15.3	Perform CHANNEL CALIBRATION of required containment sump level indication.	18 months
SR 3.4.15.4	Perform CHANNEL CALIBRATION of required containment atmosphere radioactivity monitor.	18 months

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Core Flood Tanks (CFTs)

LCO 3.5.1 Two CFTs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with Reactor Coolant System (RCS) pressure > 800 psig.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CFT inoperable due to boron concentration not within limits.	A.1	Restore boron concentration to within limits.	72 hours
B. One CFT inoperable for reasons other than Condition A.	B.1	Restore CFT 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.	12 hours
	AND		
	C.2	Reduce RCS pressure to ≤ 800 psig.	18 hours
D. Two CFTs inoperable.	D.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each CFT isolation valve is fully open.	12 hours
SR 3.5.1.2	Verify borated water volume in each CFT is $\geq$ 1010 ft^3 and $\leq$ 1070 ft^3.	12 hours
SR 3.5.1.3	Verify nitrogen cover pressure in each CFT is $\geq$ 575 psig and $\leq$ 625 psig.	12 hours
SR 3.5.1.4	Verify boron concentration in each CFT is within the limit specified in the COLR.	31 days AND ----------NOTE---------- Only required to be performed for affected CFT ---------- Once within 12 hours after each solution volume increase of $\geq$ 80 gallons that is not the result of addition from a borated water source that meets CFT boron concentration requirements.
SR 3.5.1.5	Verify power is removed from each CFT isolation valve operator.	31 days

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 High Pressure Injection (HPI)

LCO 3.5.2 Two HPI trains and two LPI-HPI flow paths shall be OPERABLE.

---NOTE---
When THERMAL POWER is > 60% RTP, three HPI pumps and the HPI discharge crossover valves shall be OPERABLE and the suction header shall be cross-connected.

APPLICABILITY: MODES 1 and 2,
MODE 3 with Reactor Coolant System (RCS) temperature > 350°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One HPI pump inoperable with THERMAL POWER > 60% RTP. OR One or more HPI discharge crossover valve(s) inoperable with THERMAL POWER > 60% RTP. OR HPI suction header not cross-connected with THERMAL POWER > 60% RTP.	A.1 Restore HPI pump to OPERABLE status. AND A.2 Restore HPI discharge crossover valve(s) to OPERABLE status. AND A.3 Cross-connect HPI suction header.	72 hours 72 hours 72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Reduce THERMAL POWER to ≤ 60% RTP.	12 hours
C. One LPI-HPI flow path inoperable.	C.1 Restore LPI-HPI flow path to OPERABLE status.	72 hours
D. One HPI train incapable of being automatically actuated but capable of being manually actuated with THERMAL POWER > 60% RTP. OR One HPI train inoperable with THERMAL POWER ≤ 60% RTP.	D.1 Restore capability to automatically actuate train. AND D.2 Restore train to OPERABLE status.	24 hours 24 hours
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Be in MODE 3. AND E.2 Reduce RCS temperature to ≤ 350°F.	12 hours 60 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify each HPI manual and non-automatic power operated valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.2.2	----------NOTE---------- Not applicable to operating HPI pump(s). ---------- Vent each HPI pump casing.	31 days
SR 3.5.2.3	Verify each HPI pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.5.2.4	Verify each HPI automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.5.2.5	Verify each HPI pump starts automatically on an actual or simulated actuation signal.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	Verify, by visual inspection, each HPI train reactor building sump suction inlet is not restricted by debris and suction inlet trash racks and screens show no evidence of structural distress or abnormal corrosion.	18 months
SR 3.5.2.7	Cycle each LPI discharge valve to the LPI-HPI flow path open manually.	18 months

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 Low Pressure Injection (LPI)

LCO 3.5.3 Two LPI trains shall be OPERABLE.

---NOTES---

1. Only one LPI train is required to be OPERABLE in MODE 4.
2. In MODE 4, an LPI train may be considered OPERABLE during alignment, when aligned or when operating for decay heat removal (DHR) if capable of being manually realigned to the LPI mode of operation.
3. In MODES 1, 2, and 3, the LPI discharge header crossover valves shall be manually OPERABLE to open.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One LPI train inoperable in MODE 1, 2, or 3.	A.1	Restore LPI train to OPERABLE status.	72 hours
B. One or more LPI discharge header crossover valve(s) manually inoperable to open in MODE 1, 2, or 3.	B.1	Restore LPI discharge header crossover valve(s) to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	60 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One required LPI train inoperable in MODE 4.	D.1 Initiate action to restore required LPI train to OPERABLE status.	Immediately
	AND	
	D.2 ----------NOTE---------- Only required if DHR loop is OPERABLE. ---------- Be in MODE 5.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify each LPI manual and non-automatic power operated valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.3.2	----------NOTE---------- Not applicable to operating LPI pump(s). ---------- Vent each LPI pump casing.	31 days
SR 3.5.3.3	Verify each LPI pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.3.4	Verify each LPI automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.5.3.5	Verify each LPI pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.5.3.6	Verify, by visual inspection, each LPI train reactor building sump suction inlet is not restricted by debris and suction inlet trash racks and screens show no evidence of structural distress or abnormal corrosion.	18 months
SR 3.5.3.7	Cycle each LPI discharge header crossover valve, LPI cooler outlet throttle valve, and LPI header isolation valve open manually.	18 months

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Borated Water Storage Tank (BWST)

LCO 3.5.4 The BWST shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. BWST boron concentration not within limits. OR BWST water temperature not within limits.	A.1 Restore BWST to OPERABLE status.	8 hours
B. BWST inoperable for reasons other than Condition A.	B.1 Restore BWST 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.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	----------NOTE---------- Only required to be performed when ambient air temperature is < 45°F or > 115°F. ---------- Verify BWST borated water temperature is ≥ 45°F and ≤ 115°F.	24 hours
SR 3.5.4.2	Verify BWST borated water volume is ≥ 350,000 gallons.	7 days
SR 3.5.4.3	Verify BWST boron concentration is within the limit specified in the COLR.	7 days

3.6 CONTAINMENT SYSTEMS

3.6.1 Containment

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1	Perform required visual examinations and Type A leakage rate testing in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.1.2	Perform required Type B and C leakage rate testing except for containment air lock testing, in accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions.	----------NOTE---------- SR 3.0.2 is not applicable ----------
	The leakage rate acceptance criterion is $\leq 1.0\ L_a$. However, during the first unit startup following testing performed in accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions, the leakage rate acceptance criteria are $< 0.6\ L_a$ for the Type B and Type C tests.	In accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions
SR 3.6.1.3	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

LCO 3.6.2 Two containment air locks 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 air lock leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment air locks with one containment air lock door inoperable.	----------NOTES---------- 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls if both air locks are inoperable. ---------- A.1 Verify the OPERABLE door is closed in the affected air lock(s). <u>AND</u>	1 hour (continued)

ACTIONS

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	Lock an OPERABLE door closed in the affected air lock(s).	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(s).	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(s).	1 hour
	AND		
	C.3	Restore air lock(s) to OPERABLE status.	24 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1	----------NOTES---------- 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria of SR 3.6.1.2 in accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions. ----------	----------NOTE---------- SR 3.0.2 is not applicable ----------
	Perform required air lock leakage rate testing in accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions.	In accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions
SR 3.6.2.2	Verify only one door in the air lock can be opened at a time.	18 months

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

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 48 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.

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.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, one closed and de-activated non-automatic power operated 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--------- Isolation devices 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.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, one closed and de-activated non-automatic power operated 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, one closed and de-activated non-automatic power operated valve, closed manual valve, or blind flange.	4 hours
	AND		
	C.2	----------NOTE---------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days
D. Required Action and associated Completion Time not met	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Verify each 48 inch purge valve is sealed closed.	31 days
SR 3.6.3.2	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ---------- Verify each containment isolation manual and non-automatic power operated valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	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 and non-automatic power operated valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.4	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	In accordance with the Inservice Testing Program
SR 3.6.3.5	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	18 months

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be ≥ -2.45 psig and ≤ +1.2 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.	12 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 Reactor Building Spray and Cooling Systems

LCO 3.6.5 Two reactor building spray trains and three reactor building cooling trains shall be OPERABLE.

---NOTE---
Only one train of reactor building spray and two trains of reactor building cooling are required to be OPERABLE during MODES 3 and 4.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One reactor building spray train inoperable in MODE 1 or 2.	A.1 Restore reactor building spray train to OPERABLE status.	7 days AND 14 days from discovery of failure to meet the LCO
B. One reactor building cooling train inoperable in MODE 1 or 2.	B.1 Restore reactor building cooling train to OPERABLE status.	7 days AND 14 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One reactor building spray train and one reactor building cooling train inoperable in MODE 1 or 2.	C.1 Restore one train to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition A, B, or C are not met.	D.1 Be in MODE 3.	12 hours
E. One required reactor building cooling train inoperable in MODE 3 or 4.	E.1 Restore required reactor building cooling train to OPERABLE status.	24 hours
F. One required reactor building spray train inoperable in MODE 3 or 4.	F.1 Restore required reactor building spray train to OPERABLE status.	24 hours
G. Required Action and associated Completion Time of Condition E or F not met.	G.1 Be in MODE 5.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Two reactor building spray trains inoperable in MODE 1 or 2. OR Two reactor building cooling trains inoperable in MODE 1 or 2. OR Any combination of three or more trains inoperable in MODE 1 or 2. OR Any combination of two or more required trains inoperable in MODE 3 or 4.	H.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1	Verify each reactor building spray manual and non-automatic power operated valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.6.5.2	Operate each required reactor building cooling train fan unit for ≥ 15 minutes.	31 days
SR 3.6.5.3	Verify each required reactor building spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.5.4	Verify that the containment heat removal capability is sufficient to maintain post accident conditions within design limits.	18 months
SR 3.6.5.5	Verify each automatic reactor building spray valve in each required flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.6.5.6	Verify each required reactor building spray pump starts automatically on an actual or simulated actuation signal.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.5.7	Verify each required reactor building cooling train starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.5.8	Verify each spray nozzle is unobstructed.	10 years

3.7 PLANT SYSTEMS

3.7.1 Main Steam Relief Valves (MSRVs)

LCO 3.7.1 Eight MSRVs shall be OPERABLE on each main steam line.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MSRVs inoperable.	A.1 Be in MODE 3.	12 hours
	AND	
	A.2 Be in MODE 4.	18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ----------	
	Verify each MSRV lift setpoint in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program

3.7 PLANT SYSTEMS

3.7.2 Turbine Stop Valves (TSVs)

LCO 3.7.2 Four TSVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3 except when all TSVs are closed.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or both TSVs for one main steam line inoperable in MODE 1.	A.1	Restore TSV(s) 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 TSV. ---------- One or more TSVs inoperable in MODE 2 or 3.	C.1	Close TSV.	8 hours
	AND		
	C.2	Verify TSV is closed.	Once per 7 days
D. Required Action and associated Completion Time of Condition B or C not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	18 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 TSV is ≤ 1.0 seconds on an actual or simulated actuation signal from Channel A.	18 months
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify closure time of each TSV is ≤ 15.0 seconds on an actual or simulated actuation signal from Channel B.	18 months

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Control Valves (MFCVs), and Startup Feedwater Control Valves (SFCVs)

LCO 3.7.3 Two MFCVs and two SFCVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3 except when all MFCVs and SFCVs are closed and deactivated or isolated by a closed manual valve.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One MFCV in one or more flow paths inoperable.	A.1	Close or isolate MFCV.	8 hours
	AND		
	A.2	Verify MFCV is closed or isolated.	Once per 7 days
B. One SFCV in one or more flow paths inoperable.	B.1	Close or isolate SFCV.	8 hours
	AND		
	B.2	Verify SFCV is closed or isolated.	Once per 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.	12 hours 18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify the closure time of each MFCV and SFCV is ≤ 25 seconds on an actual or simulated actuation signal.	In accordance with the Inservice Testing Program

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Dump Valve (ADV) Flow Paths

LCO 3.7.4 The ADV flow path for each steam generator shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both ADV flow path(s) inoperable.	A.1 Be in MODE 3.	12 hours
	AND	
	A.2 Be in MODE 4 without reliance upon steam generator for heat removal.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Cycle the valves that comprise the ADV flow paths.	18 months

3.7 PLANT SYSTEMS

3.7.5 Emergency Feedwater (EFW) System

LCO 3.7.5 The EFW System shall be OPERABLE as follows:

a. Three EFW pumps shall be OPERABLE, and

b. Two EFW flow paths shall be OPERABLE.

---NOTE---
Only one motor driven emergency feedwater (MDEFW) pump and one EFW flow path are 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 MDEFW pump inoperable in MODE 1, 2, or 3.	A.1 Restore MDEFW pump to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
B. Turbine driven EFW pump inoperable in MODE 1, 2, or 3. OR One EFW flow path inoperable in MODE 1, 2, or 3.	B.1 Restore turbine driven EFW pump and EFW flow path 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. Two MDEFW pumps inoperable in MODE 1, 2, or 3.	C.1 Restore one MDEFW pump to OPERABLE status.	12 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met. OR Turbine driven EFW pump and one EFW flow path inoperable in MODE 1, 2, or 3.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	12 hours 24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Three EFW pumps inoperable in MODE 1, 2, or 3. OR Two EFW flow path inoperable in MODE 1, 2, or 3.	E.1 ---------NOTE--------- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one EFW pump and one EFW flow path are restored to OPERABLE status. ---------- Initiate action to restore one EFW pump and one EFW flow path to OPERABLE status.	Immediately
F. Required MDEFW pump inoperable in MODE 4. OR Required EFW flow path inoperable in MODE 4.	F.1 Initiate action to restore required MDEFW pump and required EFW flow path to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each EFW manual, and non-automatic power operated valve in each water flow path and in the steam supply flow path to the 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	Verify the developed head of each EFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.7.5.3	----------NOTE---------- Not required to be met in MODES 3 and 4. ---------- Verify each EFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.7.5.4	----------NOTE---------- Not required to be met in MODES 3 and 4. ---------- Verify each EFW pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.7.5.5	Verify proper alignment of the required EFW flow paths by verifying valve alignment from the upper surge 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), Upper Surge Tank (UST), and Hotwell (HW)

LCO 3.7.6 The CST, UST, and HW shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Requirements of the LCO not met.	A.1	Be in MODE 3.	12 hours
	AND		
	A.2	Be in MODE 4 without reliance on steam generator for heat removal.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify combined inventory in the UST, CST and HW is ≥ 72,000 gal. AND Inventory in the UST is ≥ 30,000 gal.	12 hours

3.7 PLANT SYSTEMS

3.7.7 Low Pressure Service Water (LPSW) System

LCO 3.7.7 For Unit 1 or Unit 2, three LPSW pumps and one flow path shall be OPERABLE.

For Unit 3, two LPSW pumps and one flow path shall be OPERABLE.

---NOTE---

With either Unit 1 or Unit 2 defueled and appropriate LPSW loads secured on the defueled Unit, such that one LPSW pump is capable of mitigating the consequences of a design basis accident on the remaining Unit, only two LPSW pumps for Unit 1 or Unit 2 are required.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required LPSW pump inoperable.	A.1	Restore required LPSW pump to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 5.	60 hours

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.8 Emergency Condenser Circulating Water (ECCW) System

LCO 3.7.8 Two ECCW siphon headers shall be OPERABLE.

---NOTE---
Not applicable on each Unit until after completion of the Service Water upgrade modifications on the respective Unit.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required ECCW siphon header inoperable.	A.1	Restore required ECCW siphon header to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 5.	60 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	Verify required Essential Siphon Vacuum (ESV) pumps are in operation.	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.8.2	Verify Keowee Lake water level is within limits.	24 hours
SR 3.7.8.3	Verify average water temperature of Condenser Circulating Water (CCW) inlet is ≤ 90°F.	24 hours
SR 3.7.8.4	Verify each manual and non-automatic power operated valve in each ECCW siphon header flow path, required ESV flow paths and required SSW flow paths that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.7.8.5	Verify upon an actual or simulated actuation signal each ESV float valve actuates to the correct position.	92 days
SR 3.7.8.6	Verify upon an actual or simulated actuation signal each required ESV and Siphon Seal Water (SSW) valve actuates to the correct position.	92 days
SR 3.7.8.7	Verify the developed capacity of each required ESV pump at the test point is greater than or equal to the required capacity.	92 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.8.8	Verify each required ESV pump automatically starts in ≤ 1200 seconds upon an actual or simulated restoration of emergency power.	92 days
SR 3.7.8.9	----------NOTE---------- Not required to be performed for Units 1 and 2 with the shared Unit 1 and 2 LPSW System taking suction from the siphon. ---------- Verify upon an actual or simulated trip of the CCW pumps and ESV pumps that the rate of water level drop in the ECCW siphon header is within limits.	18 months

3.7 PLANT SYSTEMS

3.7.9 Control Room Ventilation System (CRVS) Booster Fans

LCO 3.7.9 Two CRVS Booster Fan trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Control Room pressure ≤ 0.0 psig during operation of two CRVS Booster Fan trains.	A.1	Restore Control Room pressure to > 0.0 psig during operation of two CRVS Booster Fan trains.	30 days
B. One CRVS Booster Fan train inoperable for reasons other than Condition A.	B.1	Restore CRVS Booster Fan train to OPERABLE status.	72 hours
C. Two CRVS Booster Fan trains inoperable for reasons other than Condition A.	C.1	Restore one CRVS Booster Fan train to OPERABLE status.	24 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 5	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Operate each CRVS Booster Fan train for ≥ 1 hour.	92 days
SR 3.7.9.2	Perform required CRVS Booster Fan train filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.9.3	Verify two CRVS Booster Fan trains can maintain the Control Room at a positive pressure.	18 months

3.7 PLANT SYSTEMS

3.7.10 Penetration Room Ventilation System (PRVS)

LCO 3.7.10 Two PRVS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One PRVS train inoperable.	A.1	Restore PRVS train to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each PRVS train for ≥ 15 minutes.	31 days
SR 3.7.10.2	Perform required PRVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.10.3	Verify each PRVS train actuates on an actual or simulated actuation signal.	18 months
SR 3.7.10.4	Verify one PRVS train can maintain a negative pressure ≥ 0.06 inches water gauge relative to atmospheric pressure during operation at a flow rate of ≥ 900 cfm and ≤ 1100 cfm.	18 months on a STAGGERED TEST BASIS
SR 3.7.10.5	Verify the PRVS filter cooling bypass valve can be opened.	18 months

3.7 PLANT SYSTEMS

3.7.11 Spent Fuel Pool Water Level

LCO 3.7.11 The Spent Fuel Pool water level shall be ≥ 21.34 ft over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the Spent Fuel Pool, During movement of cask over the Spent Fuel Pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent Fuel Pool water level not within limit.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	A.1 Suspend movement of irradiated fuel assemblies in Spent Fuel Pool.	Immediately
	AND	
	A.2 Suspend movement of cask over Spent Fuel Pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify the Spent Fuel Pool water level is ≥ 21.34 ft above the top of irradiated fuel assemblies seated in the storage racks.	7 days

3.7 PLANT SYSTEMS

3.7.12 Spent Fuel Pool Boron Concentration

LCO 3.7.12 The spent fuel pool boron concentration shall be within the limits specified in the COLR.

APPLICABILITY: When fuel assemblies are stored in the spent fuel pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent fuel pool boron concentration not within limit.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	A.1 Suspend movement of fuel assemblies in the spent fuel pool.	Immediately
	AND	
	A.2 Initiate action to restore spent fuel pool boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	Verify the spent fuel pool boron concentration is within limit.	31 days AND After each makeup to the spent fuel pool

3.7 PLANT SYSTEMS

3.7.13 Fuel Assembly Storage

LCO 3.7.13 The combination of initial enrichment and burnup of each new or spent fuel assembly stored in the spent fuel pool storage racks shall be within the following configurations:

a. Fuel may be stored in the spent fuel pool shared between Units 1 and 2 in accordance with these limits:

1. Unrestricted storage meeting the criteria of Figure 3.7.13-1.

2. Restricted storage in accordance with Figure 3.7.13-5 of fuel which does not meet the criteria of Figure 3.7.13-1.

b. Fuel may be stored in the spent fuel pool for Unit 3 in accordance with these limits:

1. Unrestricted storage meeting the criteria of Figure 3.7.13-2.

2. Restricted storage in accordance with Figure 3.7.13-6 of fuel which does not meet the criteria of Figure 3.7.13-2.

APPLICABILITY: Whenever any fuel assembly is stored in the spent fuel pool.

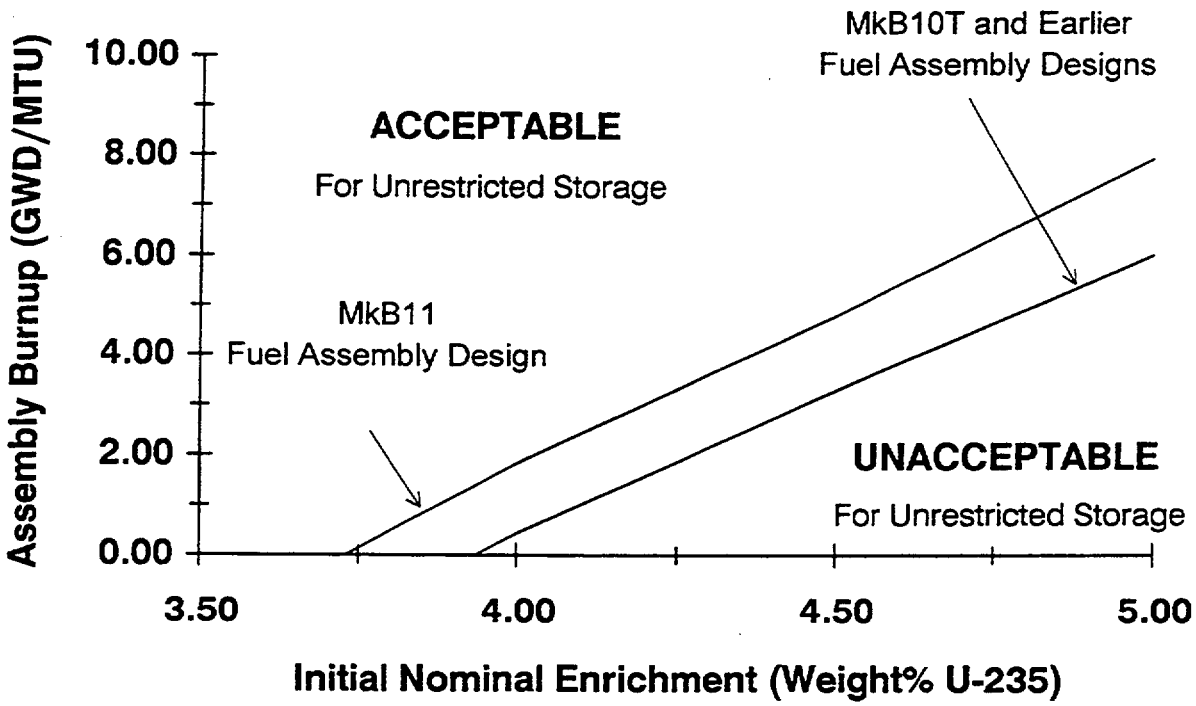
ACTIONS

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 to the correct location.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.13.1	Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure 3.7.13-1 or Figure 3.7.13-5 for the spent fuel pool shared by Units 1 and 2 or Figure 3.7.13-2 or Figure 3.7.13-6 for the Unit 3 spent fuel pool.	Prior to storing the fuel assembly in the spent fuel pool

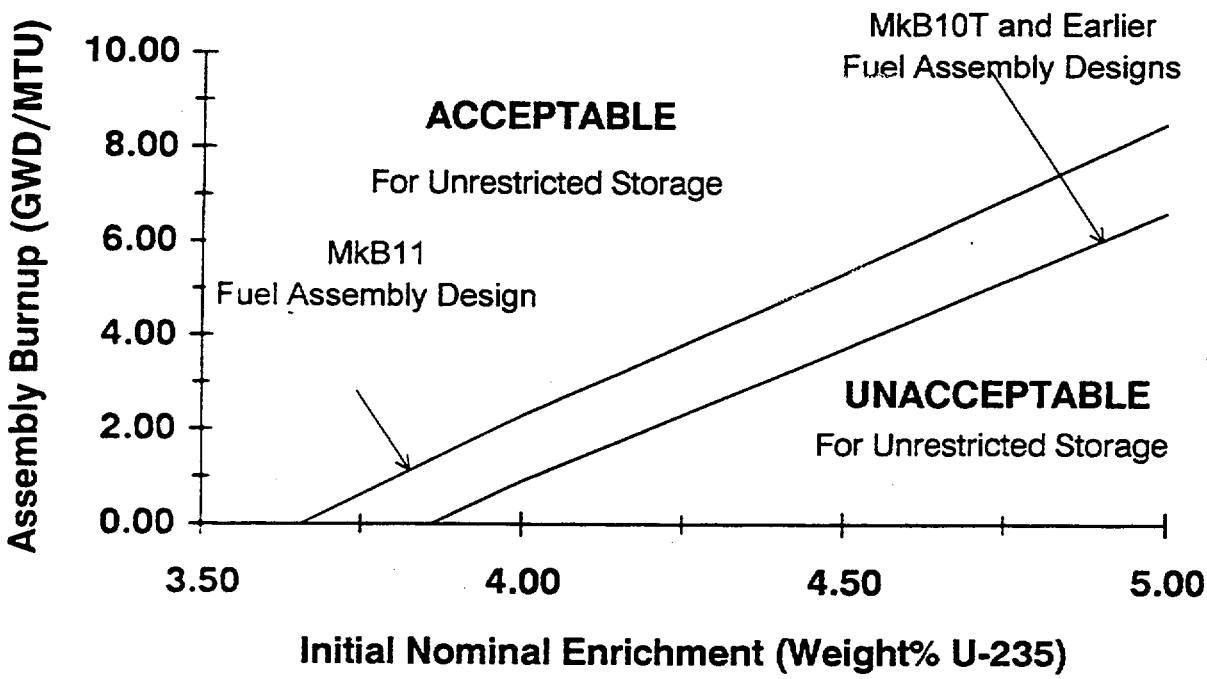
MkB10T and Earlier Fuel Assembly Designs		MkB11 Fuel Assembly Design	
Initial Nominal Enrichment (Weight% U-235)	Assembly Burnup (GWD/MTU)	Initial Nominal Enrichment (Weight% U-235)	Assembly Burnup (GWD/MTU)
3.93 (or less)	0	3.73 (or less)	0
4.00	0.43	4.00	1.83
4.50	3.30	4.50	4.80
5.00	6.03	5.00	7.95



Fuel which differs from those designs used to determine the requirements of Figure 3.7.13-1 may be qualified for Unrestricted storage by means of an analysis using NRC approved methodology to assure that k_{eff} is less than or equal to 0.95. Likewise, previously unanalyzed fuel up to 5.0 weight% U-235 may be qualified for Restricted storage by means of an analysis using NRC approved methodology to assure that k_{eff} is less than or equal to 0.95.

Figure 3.7.13-1 (page 1 of 1)
Minimum Qualifying Burnup versus Initial Enrichment
for Unrestricted Storage in the Units 1 and 2 Spent Fuel Pool

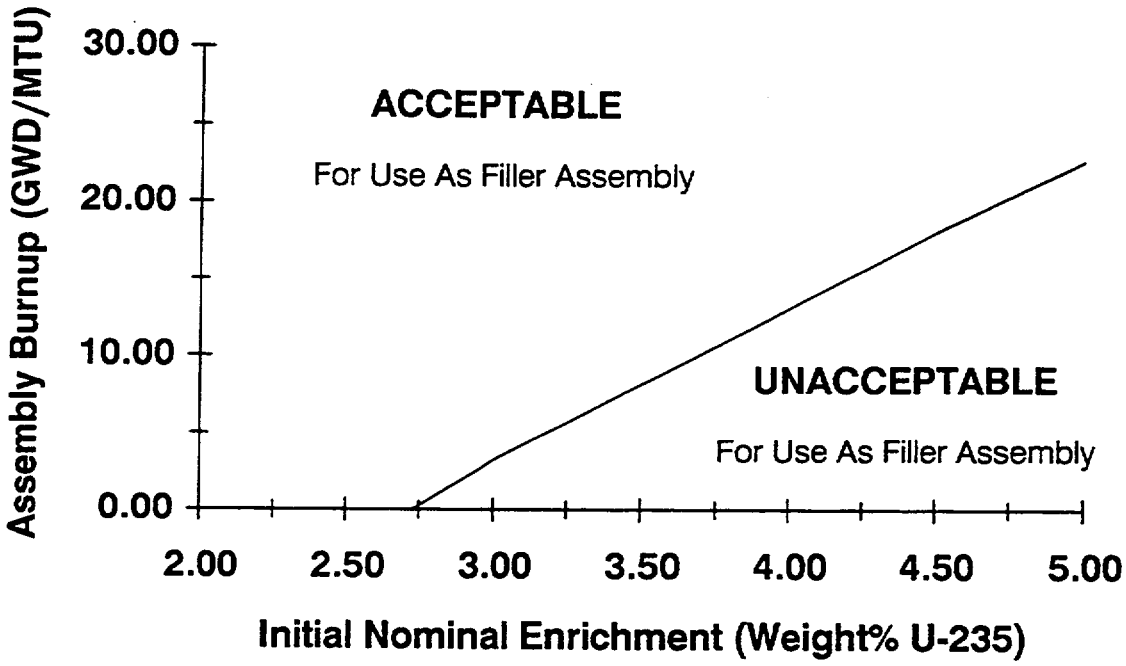
MkB10T and Earlier Fuel Assembly Designs		MkB11 Fuel Assembly Design	
Initial Nominal Enrichment (Weight% U-235)	Assembly Burnup (GWD/MTU)	Initial Nominal Enrichment (Weight% U-235)	Assembly Burnup (GWD/MTU)
3.86 (or less)	0	3.66 (or less)	0
4.00	0.91	4.00	2.31
4.50	3.73	4.50	5.34
5.00	6.60	5.00	8.49



Fuel which differs from those designs used to determine the requirements of Figure 3.7.13-2 may be qualified for Unrestricted storage by means of an analysis using NRC approved methodology to assure that k_{eff} is less than or equal to 0.95. Likewise, previously unanalyzed fuel up to 5.0 weight% U-235 may be qualified for Restricted storage by means of an analysis using NRC approved methodology to assure that k_{eff} is less than or equal to 0.95.

Figure 3.7.13-2 (page 1 of 1)
Minimum Qualifying Burnup versus Initial Enrichment
for Unrestricted Storage in the Unit 3 Spent Fuel Pool

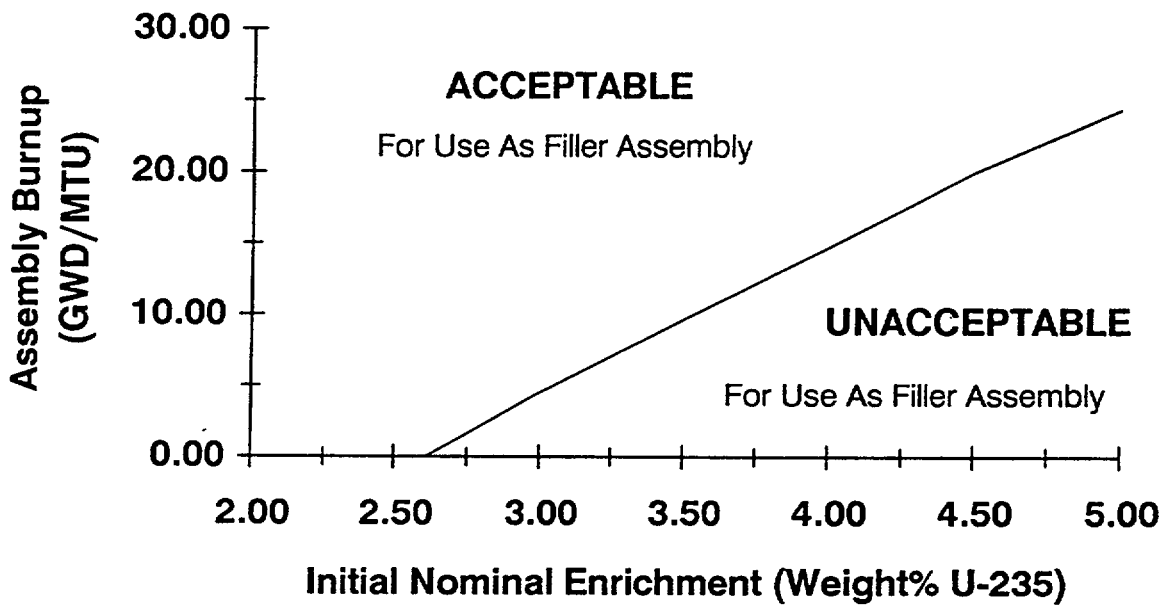
All Fuel Assembly Designs	
Initial Nominal Enrichment (Weight% U-235)	Assembly Burnup (GWD/MTU)
2.72 (or less)	0
3.00	3.25
3.50	8.22
4.00	13.13
4.50	18.10
5.00	22.69



Fuel which differs from those designs used to determine the requirements of Figure 3.7.13-3 may be qualified for use as a Filler Assembly by means of an analysis using NRC approved methodology to assure that k_{eff} is less than or equal to 0.95.

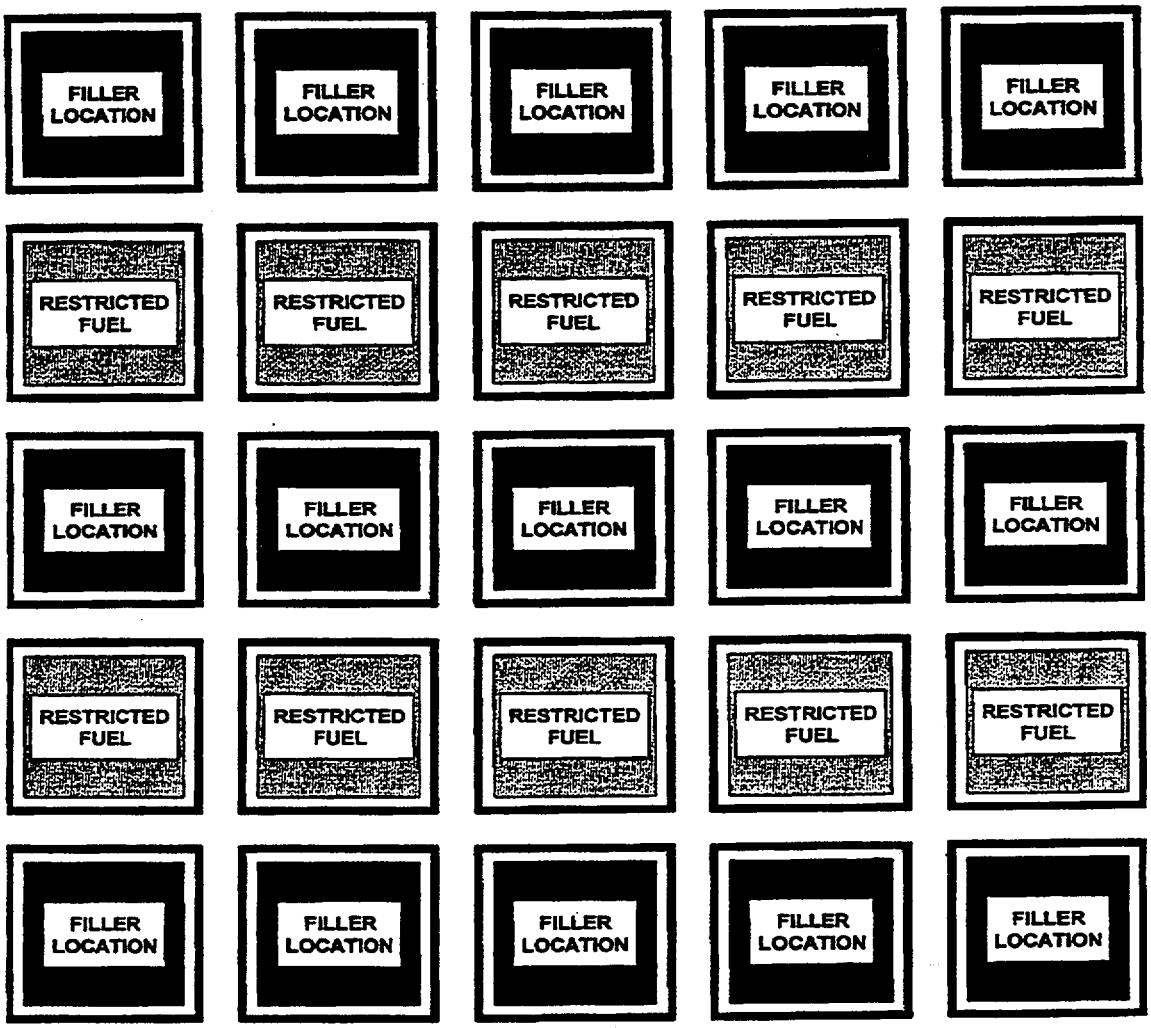
Figure 3.7.13-3 (1 of 1)
Minimum Qualifying Burnup Versus Initial Enrichment
for Filler Assemblies in the Unit 1 and 2 Spent Fuel Pool

All Fuel Assembly Designs	
Initial Nominal Enrichment (Weight% U-235)	Assembly Burnup (GWD/MTU)
2.61 (or less)	0
3.00	4.49
3.50	9.62
4.00	14.68
4.50	19.96
5.00	24.37



Fuel which differs from those designs used to determine the requirements of Figure 3.7.13-4 may be qualified for use as a Filler Assembly by means of an analysis using NRC approved methodology to assure that k_{eff} is less than or equal to 0.95.

Figure 3.7.13-4 (1 of 1)
Minimum Qualifying Burnup Versus Initial Enrichment
for Filler Assemblies in the Unit 3 Spent Fuel Pool

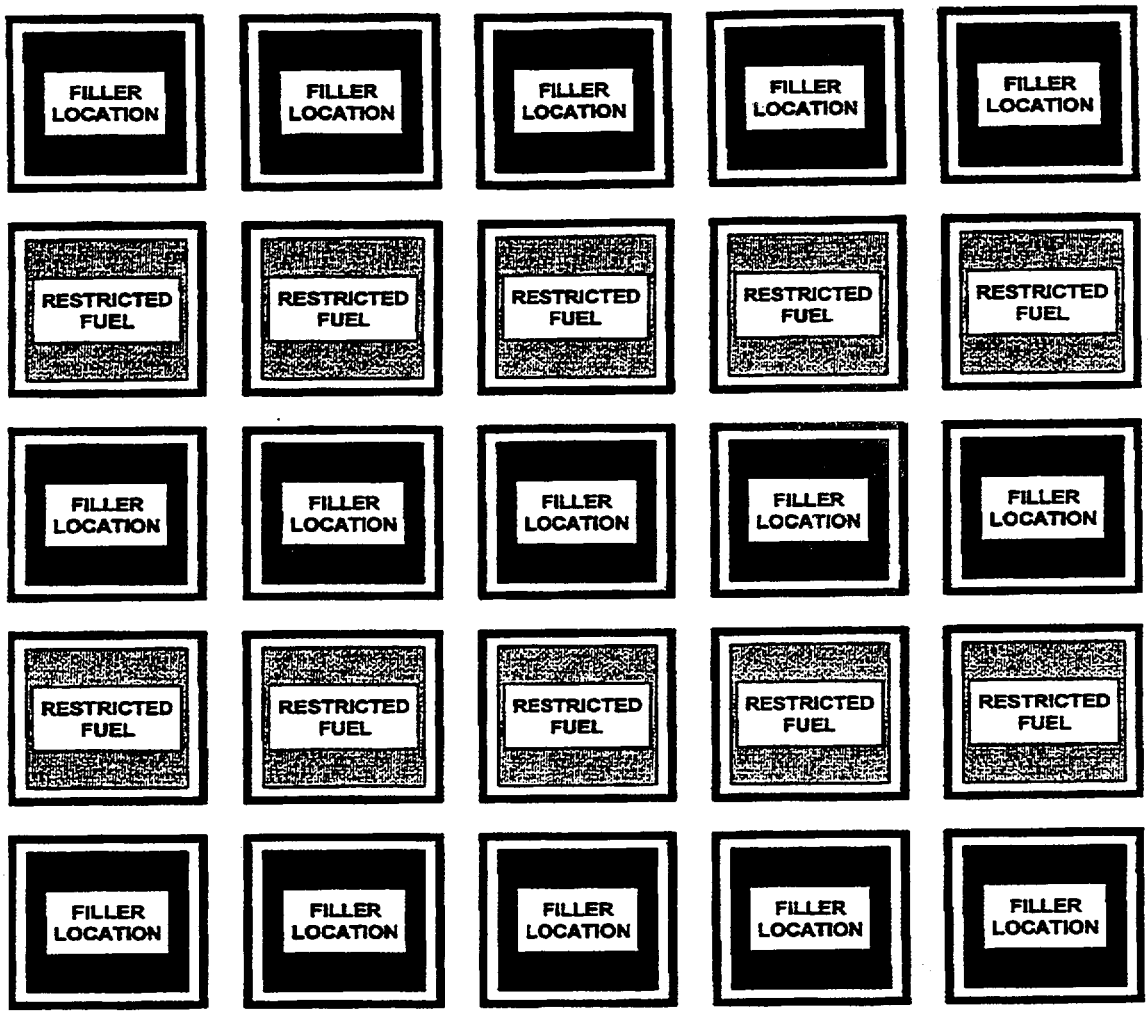


Restricted Fuel: Fuel which does not meet the minimum burnup requirements of Figure 3.7.13-1. (Fuel which does meet the requirements of Figure 3.7.13-1 may be placed in restricted fuel locations as needed).

Filler Location: Either fuel which meets the minimum burnup requirements of Figure 3.7.13-3, or an empty cell.

Boundary Condition: Any row bounded by an Unrestricted Storage Area shall contain a row of filler locations (i.e. A row of Restricted fuel assemblies may not be adjacent to a row of Unrestricted fuel assemblies).

Figure 3.7.13-5 (1 of 1)
Required Loading Pattern for Restricted Storage
in the Unit 1 and 2 Spent Fuel Pool



Restricted Fuel: Fuel which does not meet the minimum burnup requirements of Figure 3.7.13-2. (Fuel which does meet the requirements of Figure 3.7.13-2 may be placed in restricted fuel locations as needed).

Filler Location: Either fuel which meets the minimum burnup requirements of Figure 3.7.13-4, or an empty cell.

Boundary Condition: Any row bounded by an Unrestricted Storage Area shall contain a row of filler locations (i.e. A row of Restricted fuel assemblies may not be adjacent to a row of Unrestricted fuel assemblies).

Figure 3.7.13-6 (1 of 1)
Required Loading Pattern for Restricted Storage
in the Unit 3 Spent Fuel Pool

3.7 PLANT SYSTEMS

3.7.14 Secondary Specific Activity

LCO 3.7.14 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. AND A.2 Be in MODE 5.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.14.1	Verify the specific activity of the secondary coolant is ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.	31 days

3.7 PLANT SYSTEMS

3.7.15 Decay Time for Fuel Assemblies in Spent Fuel Pool (SFP)

LCO 3.7.15 Decay time for irradiated fuel assemblies in the SFP shall be as follows:

a. For spent fuel shipping cask movement in the Unit 1 and 2 SFP area, each irradiated fuel assembly stored in the first 36 rows closest to the spent fuel cask handling area shall be decayed ≥ 55 days;

b. For spent fuel shipping cask movement in the Unit 3 SFP area, each irradiated fuel assembly stored in the first 33 rows closest to the spent fuel cask handling area shall be decayed ≥ 70 days;

c. For dry storage transfer cask movement in the Unit 1 and 2 SFP area, each irradiated fuel assembly stored in the first 64 rows closest to the spent fuel cask handling area shall be decayed ≥ 65 days; and

d. For dry storage transfer cask movement in the Unit 3 SFP area, each irradiated fuel assembly stored in the SFP shall be decayed ≥ 57 days.

APPLICABILITY: During movement of spent fuel shipping cask or dry storage transfer cask in the SFP area

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of cask in SFP area.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.15.1	Verify by administrative means the decay time for fuel assemblies is within limit.	Prior to cask movement in the spent fuel pool

3.7 PLANT SYSTEMS

3.7.16 Control Room Area Cooling Systems (CRACS)

LCO 3.7.16 Two CRACS trains shall be OPERABLE as follows:

a. Two trains of the Control Room Ventilation System (CRVS) shall be OPERABLE, and

b. Two trains of the Chilled Water (WC) System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CRVS train inoperable.	A.1 Restore CRVS train to OPERABLE status.	30 days
B. One WC train inoperable.	B.1 Restore WC train to OPERABLE status.	30 days
C. Control Room area air temperature not within limit.	----------NOTE---------- LCO 3.0.4 is not applicable. ----------	
	C.1 Restore Control Room area air temperature within limit.	7 days

(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.	12 hours 36 hours
E. Two CRVS trains inoperable. OR Two WC Trains inoperable.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.16.1	Verify temperature in Control Room and Cable Room is ≤ 80°F and temperature in Electrical Equipment Room is ≤ 85°F.	12 hours

3.7 PLANT SYSTEMS

3.7.17 Spent Fuel Pool Ventilation System (SFPVS)

LCO 3.7.17 Two SFPVS trains shall be OPERABLE.

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

1. LCO 3.0.3 is not applicable.
2. Not applicable during reracking operations with no fuel in the spent fuel pool.

APPLICABILITY: During movement of fuel in the spent fuel pool.
During crane operations with loads over the spent fuel pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SFPVS train inoperable.	A.1 Place OPERABLE SFPVS train in operation.	Immediately
	OR	
	A.2.1 Suspend movement of fuel in the spent fuel pool	Immediately
	AND	
	A.2.2 Suspend crane operations with loads over the spent fuel pool.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two SFPVS trains inoperable.	B.1.1 Suspend movement of fuel in the spent fuel pool.	Immediately
	AND	
	B.1.2 Suspend crane operations with loads over the spent fuel pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.17.1	Operate each SFPVS train for ≥ 15 minutes.	31 days
SR 3.7.17.2	Perform required SFPVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources – Operating

LCO 3.8.1

a. The following AC electrical power sources shall be OPERABLE:

1. Two offsite sources on separate towers connected to the 230 kV switchyard to a unit startup transformer and capable of automatically supplying power to one main feeder bus; and

2. Two Keowee Hydro Units (KHUs) with one capable of automatically providing power through the underground emergency power path to both main feeder buses and the other capable of automatically providing power through the overhead emergency power path to both main feeder buses.

b. The Keowee Reservoir level shall be ≥ 775 feet above sea level.

c. The zone overlap protection circuitry shall be OPERABLE when the overhead electrical disconnects for the KHU associated with the underground power path are closed.

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

1. A unit startup transformer may be shared with a unit in MODES 5 or 6.

2. The requirements of Specification 5.5.18, "KHU Commercial Power Generation Testing Program," shall be met for commercial KHU power generation.

3. The requirements of Specification 5.5.19, "Lee Combustion Turbine Testing Program," shall be met when a Lee Combustion Turbine (LCT) is used to comply with Required Actions.

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

ACTIONS

NOTE

LCO 3.0.4 is not applicable when both standby buses are energized to comply with Required Actions.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Both required offsite sources and the overhead emergency power path inoperable due to inoperable unit startup transformer.	A.1	Perform SR 3.8.1.3.	1 hour if not performed in previous 12 hours
	AND		
	A.2	Align the emergency startup bus to share another unit's startup transformer.	12 hours
	AND		
	A.3.1	Restore unit startup transformer to OPERABLE status and normal startup bus alignment.	36 hours
	OR		
	A.3.2	Designate one unit, sharing the startup transformer, to be shutdown.	36 hours
B. Unit designated to be shutdown due to sharing a unit startup transformer.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 5.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. KHU or its required overhead emergency power path inoperable due to reasons other than Condition A.	C.1	Perform SR 3.8.1.3 for OPERABLE KHU.	1 hour if not performed in previous 12 hours AND Once per 7 days thereafter
	AND		
	C.2.1	Restore the KHU and its required overhead emergency power path to OPERABLE status.	72 hours AND 72 hours from discovery of inoperable KHU
	OR		
	C.2.2.1	Energize both standby buses from LCT via isolated power path.	72 hours AND 1 hour from subsequent discovery of deenergized standby bus
		AND	
	C.2.2.2	Suspend KHU generation to grid except for testing.	72 hours
		AND	
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.2.3 Verify by administrative means that the remaining KHU and its required underground emergency power path and both required offsite sources are OPERABLE and the requirements of LCO 3.8.3, "DC Sources-Operating," LCO 3.8.6, "Vital Inverters-Operating," LCO 3.8.8, "Distribution Systems-Operating," LCO 3.3.17, "EPSL Automatic Transfer Function," LCO 3.3.18, "EPSL Voltage Sensing Circuits," LCO 3.3.19, "EPSL 230 kV Switchyard DGVP," and LCO 3.3.21, "EPSL Keowee Emergency Start Function" are met.	72 hours
	AND	
	C.2.2.4 Verify alternate power source capability by performing SR 3.8.1.16.	72 hours AND Every 31 days thereafter
	AND	
		(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.2.5 Restore KHU and its required overhead emergency power path to OPERABLE status.	28 days when Condition due to an inoperable Keowee main step-up transformer AND 45 days from discovery of initial inoperability when Condition due to an inoperable KHU if not used for that KHU in the previous 3 years

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. KHU or its required underground power path inoperable.	D.1	Perform SR 3.8.1.4 for OPERABLE KHU.	1 hour if not performed in previous 12 hours
	AND		
	D.2	Energize either standby bus from LCT via isolated power path.	24 hours AND 1 hour from subsequent discovery of deenergized required standby bus
	AND		
	D.3	Restore KHU and its required underground emergency power path to OPERABLE status.	72 hours AND 72 hours from discovery of inoperable KHU
E. Required Action and associated Completion Time not met for Required Action D.2.	E.1	Be in MODE 3.	12 hours for one unit AND 24 hours for other unit(s)
	AND		84 hours
	E.2	Be in MODE 5.	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Zone overlap protection circuitry inoperable when overhead electrical disconnects for KHU associated with the underground power path are closed.	F.1	Restore zone overlap protection circuitry to OPERABLE status.	72 hours
	OR		
	F.2	Open overhead electrical disconnects for KHU associated with the underground power path.	72 hours
G. Both emergency power paths inoperable due to one inoperable E breaker and one inoperable S breaker on the same main feeder bus.	G.1	Restore one breaker to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
H. ----------NOTE---------- Condition may be entered only when both required offsite sources are verified by administrative means to be OPERABLE and the requirements of LCO 3.8.3, "DC Sources-Operating;" LCO 3.8.6, "Vital Inverters-Operating;" LCO 3.8.8, "Distribution Systems-Operating;" LCO 3.3.17, "EPSL Automatic Transfer Function;" LCO 3.3.18, "EPSL Voltage Sensing Circuits;" LCO 3.3.19, "EPSL 230 kV Switchyard DGVP," are verified by administrative means to be met. ---------- Both KHUs or their required emergency power paths inoperable for planned maintenance or test with both standby buses energized from LCT via isolated power path.	H.1	Energize both standby buses from LCT via isolated power path.	1 hour from discovery of deenergized standby bus
	AND		
	H.2	Restore one KHU and its required emergency power path to OPERABLE status.	60 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
I. Both KHUs or their required emergency power paths inoperable for reasons other than Condition G and H.	I.1	Energize both standby buses from LCT via isolated power path.	1 hour AND 1 hour from subsequent discovery of deenergized standby bus
	AND		
	I.2	Determine by administrative means the OPERABILITY status of both required offsite sources, and of equipment required by LCO 3.8.3, "DC Sources-Operating," LCO 3.8.6, "Vital Inverters-Operating," LCO 3.8.8, "Distribution Systems-Operating," LCO 3.3.17, "EPSL Automatic Transfer Function," LCO 3.3.18, "EPSL Voltage Sensing Circuits," LCO 3.3.19, "EPSL 230 kV Switchyard DGVP."	1 hour
	AND		
	I.3	Restore one KHU and its required emergency power path to OPERABLE status.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
J. One or both required offsite sources inoperable due to reasons other than Condition A.	J.1	Energize both standby buses from LCT via isolated power path.	1 hour AND 1 hour from subsequent discovery of deenergized standby bus
	AND		
	J.2	Determine by administrative means the OPERABILITY status of both KHUs and their required emergency power paths and of equipment required by LCO 3.8.3, "DC Sources-Operating," LCO 3.8.6, "Vital Inverters-Operating," LCO 3.8.8, "Distribution Systems-Operating," LCO 3.3.17, "EPSL Automatic Transfer Function," LCO 3.3.18, "EPSL Voltage Sensing Circuits," LCO 3.3.19, "EPSL 230 kV Switchyard DGVP," and LCO 3.3.21, "EPSL Keowee Emergency Start Function."	1 hour
	AND		
	J.3	Restore both offsite sources to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. ---------NOTE--------- Separate Condition entry is allowed for each breaker. ---------- One trip circuit in one or both closed N breakers inoperable. OR One trip circuit in one or both closed SL breakers inoperable.	K.1 Restore each trip circuit to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
L. ---------NOTE--------- Separate Condition entry is permitted for each inoperable AC Source, and LCO or SR not met. ---------- AC Source inoperable or LCO not met, as stated in Note for Condition H entry. OR AC Source inoperable or LCO not met, as stated in Required Action C.2.2.3 when in Condition C for > 72 hours. OR AC Source inoperable or LCO not met, as stated in Required Actions I.2 or J.2 when in Conditions I or J for > 1 hour. OR SR 3.8.1.16 not met.	----------NOTE---------- Not required when a KHU or its required emergency power path are made inoperable for ≤ 12 hours for the purpose of restoring the other KHU to OPERABLE status. ---------- L.1	Restore inoperable AC Source to OPERABLE status.	4 hours
	AND		
	L.2	Restore compliance with LCO.	4 hours
	AND		
	L.3	Restore compliance with SR 3.8.1.16.	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. Required Action and associated Completion Time for Condition C, F, G, H, I, J, K or L not met. OR Required Action and associated Completion Time not met for Required Action D.1 or D.3.	M.1 Be in MODE 3. AND M.2 Be in MODE 5.	12 hours 84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite source.	7 days
SR 3.8.1.2	Verify battery terminal voltage is ≥ 125 V on float charge for each KHU's battery.	7 days
SR 3.8.1.3	Verify the KHU associated with the underground emergency power path starts automatically and energizes the underground emergency power path. Manually close the SK breaker to each de-energized standby bus.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.4	----------NOTE---------- The requirement to energize the underground emergency power path is not applicable 1) when the overhead disconnects are open for the KHU associated with the underground emergency power path or 2) when complying with Required Action D.1. ---------- Verify the KHU associated with the overhead emergency power path starts automatically and automatically or manually synchronize it to the Yellow bus in 230 kV switchyard. Energize the underground emergency power path after removing the KHU from the overhead emergency power path.	31 days
SR 3.8.1.5	----------NOTE---------- Not required to be performed for an SL breaker when its standby bus is energized from a LCT via an isolated power path. ---------- Verify each closed SL and each closed N breaker opens manually or on an actual or simulated actuation signal.	31 days
SR 3.8.1.6	----------NOTE---------- Not required to be performed for an S breaker when its standby bus is energized from a LCT via an isolated power path. ---------- Operate each S and each E breaker through a full cycle.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	Verify both KHU's underground tie breakers cannot be closed simultaneously.	12 months
SR 3.8.1.8	Verify each KHU's overhead emergency power path tie breaker cannot be closed when tie breaker to underground emergency power path is closed.	12 months
SR 3.8.1.9	Verify on an actual or simulated emergency actuation signal each KHU auto starts and: a. Achieves frequency ≥ 57 Hz and ≤ 63 Hz and voltage ≥ 13.5 kV and ≤ 14.49 kV in ≤ 23 seconds; and b. Supplies the equivalent of one Unit's maximum safeguard loads plus two Unit's hot shutdown loads when synchronized to system grid and loaded at maximum practical rate.	12 months
SR 3.8.1.10	Verify each KHU's battery capacity is adequate to supply, and maintain in OPERABLE status, required emergency loads for design duty cycle when subjected to a battery service test.	12 months
SR 3.8.1.11	Verify each KHU's battery cells, cell end plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	12 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	Verify each KHU's battery cell to cell and terminal connections are clean and tight, and are coated with anti-corrosion material.	12 months
SR 3.8.1.13	----------NOTE---------- Only applicable when the overhead electrical disconnects for the KHU associated with the underground emergency power path are closed. ---------- Verify on an actual or simulated zone overlap fault signal each KHU's overhead tie breaker and underground tie breaker actuate to the correct position.	12 months
SR 3.8.1.14	----------NOTES---------- Not required to be performed for an SL breaker when its standby bus is energized from a LCT via an isolated power path. ---------- Verify each closed SL and closed N breaker opens on an actuation of each redundant trip coil.	18 months
SR 3.8.1.15	----------NOTE---------- Redundant breaker trip coils shall be verified on a STAGGERED TEST BASIS. ---------- Verify each 230 kV switchyard circuit breaker actuates to the correct position on a switchyard isolation actuation signal.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.16	----------NOTE---------- Only applicable when complying with Required Action C.2.2.4. ---------- Verify one KHU provides an alternate manual AC power source capability by manual or automatic KHU start with manual synchronize, or breaker closure, to energize its non-required emergency power path.	As specified by Required Action C.2.2.4

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 source from the offsite transmission network to the onsite AC electrical power distribution system(s) required by LCO 3.8.9, "Distribution Systems – Shutdown". The offsite power source shall be an offsite circuit available or connected to one of the following:

   1. 230 kV switchyard to a unit startup transformer to one main feeder bus,

   2. 230 kV switchyard, or 525 kV switchyard for Unit 3, to the main step-up and unit auxiliary transformers to one main feeder bus, or

   3. Central switchyard to one main feeder bus.

b. One emergency power source capable of supplying the onsite AC electrical power distribution system(s) required by LCO 3.8.9. The emergency power source shall include one of the following:

   1. One Keowee Hydro Unit (KHU) capable of providing power through the underground emergency power path to one main feeder bus,

   2. One KHU capable of providing power through the overhead emergency power path to one main feeder bus, or

   3. One LCT energizing one standby bus via an isolated power path to one main feeder bus.

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

1. A unit startup transformer may be shared with a Unit in MODES 1 through 6.

2. The requirements of ITS 5.5.19, "Lee Combustion Turbine Testing Program," shall be met when a LCT is used for the emergency power requirements.

3. The required emergency power source and required offsite power source shall not be susceptible to a failure disabling both sources.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite source inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, with required equipment 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	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND	
	A.2.4 Initiate action to restore required offsite power source to OPERABLE status.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One required emergency power source inoperable.	B.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	B.2	Suspend movement of irradiated fuel assemblies.	Immediately
	AND		
	B.3	Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND		
	B.4	Initiate action to restore required emergency power source to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	----------NOTE---------- 1. SR requirements for both standby buses or both main feeder buses are reduced to one standby bus and one main feeder bus. 2. SR 3.8.1.4 requirement to energize the underground emergency power path is not applicable. ----------	
	For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources – Operating," except SR 3.8.1.7, SR 3.8.1.13, SR 3.8.1.14, SR 3.8.1.15 and SR 3.8.1.16, are applicable.	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 DC Sources – Operating

LCO 3.8.3 DC Sources shall be OPERABLE as follows:

a. Three of four 125 VDC Vital I&C power sources for each unit as follows,

Unit 1 - 1CA, 1CB, 2CA, 2CB

Unit 2 - 2CA, 2CB, 3CA, 3CB

Unit 3 - 3CA, 3CB, 1CA, 1CB;

and each aligned to at least one panelboard provided that a power source is not the only source for two or more of the Unit's panelboards.

b. Two additional 125 VDC Vital I&C power sources when any other Unit is in MODES 1, 2, 3, or 4;

c. One additional 125 VDC Vital I&C power source when no other Unit is in MODES 1, 2, 3, or 4;

d. Two 230 kV Switchyard 125 VDC power sources.

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

1. For Units 2 and 3, a 125 VDC Vital I&C power source shall not be the only source for panelboards 1DIC and 1DID required by LCO 3.8.8.

2. Each additional 125 VDC Vital I&C source required by LCO 3.8.3 part b or part c shall be connected to at least one panelboard associated with the unit where the source is physically located.

3. The additional 125 VDC Vital I&C power source required by LCO 3.8.3 part c shall not be a 125 VDC Vital I&C power source that is available to meet the three of four requirement of LCO 3.8.3 part a.

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

ACTIONS

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

The Completion Times for Required Actions A through D are reduced when in Condition L of LCO 3.8.1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required 125 VDC Vital I&C power source inoperable.	A.1 ----------NOTE---------- Not applicable for up to 72 hours to perform equalization charge after completion of a performance or service test. ---------- Restore required power source to OPERABLE status.	24 hours
B. One required 125 VDC Vital I&C power source the only source for two or more of the Unit's panelboards.	B.1 Align sources such that one power source is not the only source for two or more of the Unit's panelboards.	24 hours
C. ----------NOTE---------- Only applicable to Units 2 and 3. ---------- One 125 VDC Vital I&C power source the only source for panelboards 1DIC and 1DID.	C.1 Align sources such that one power source is not the only source to panelboards 1DIC and 1DID.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One 230 kV switchyard 125 VDC power source inoperable.	D.1	----------NOTE--------- Not applicable for up to 72 hours to perform equalization charge after completion of a performance or service test. ---------- Restore power source to OPERABLE status.	 24 hours
E. Required Action and Associated Completion Time not met	E.1 AND E.2	Be in MODE 3. Be in MODE 5.	12 hours 84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify correct breaker alignments and voltage availability from required distribution centers to isolating transfer diodes.	7 days
SR 3.8.3.2	Verify battery terminal voltage is ≥ 125V on float charge.	7 days
SR 3.8.3.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	12 months
SR 3.8.3.4	Verify battery cell to cell and terminal connections are clean and tight, and are coated with anti-corrosion material.	12 months
SR 3.8.3.5	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.	12 months
SR 3.8.3.6	Verify battery capacity is in accordance with the Battery Discharge Testing Program.	In accordance with the Battery Discharge Testing Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources – Shutdown

LCO 3.8.4 125 VDC Vital I&C power source(s) shall be OPERABLE to support the 125 VDC Vital I&C power panelboards(s) required by LCO 3.8.9, "Distribution Systems – Shutdown" and shall include at least one of the unit's 125 VDC Vital I&C power sources.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required 125 VDC Vital I&C power sources 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 involving positive reactivity additions.	Immediately
	AND	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate action to restore required power sources to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	----------NOTE---------- The following SRs are not required to be performed: SR 3.8.3.5 and SR 3.8.3.6. ----------	
	For 125 VDC Vital I&C power sources required to be OPERABLE, the following SRs are applicable: SR 3.8.3.1 SR 3.8.3.2 SR 3.8.3.3 SR 3.8.3.4 SR 3.8.3.5 SR 3.8.3.6	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 Battery Cell Parameters

LCO 3.8.5 Battery cell parameters for the Keowee Hydro Unit (KHU), 125 VDC Vital I&C, and 230 kV 125 VDC switchyard batteries shall be within the limits of Table 3.8.5-1.

APPLICABILITY: When associated DC power sources are required to be OPERABLE.

ACTIONS

NOTES

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Category A or B limits.	A.1	Verify pilot cell electrolyte level and float voltage meet Table 3.8.5-1 Category C values.	1 hour
	AND		
	A.2	Verify battery cell parameters meet Table 3.8.5-1 Category C values.	24 hours AND Once per 7 days thereafter
	AND		
	A.3	Restore battery cell parameters to Category A and B limits of Table 3.8.5-1.	90 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 3.8.5.1	Verify battery cell parameters meet Table 3.8.5-1 Category A limits.	7 days
SR 3.8.5.2	Verify battery cell parameters meet Table 3.8.5-1 Category B limits.	92 days
SR 3.8.5.3	Verify average electrolyte temperature of representative cells is ≥ 60°F.	92 days

Table 3.8.5-1 (page 1 of 1)
Battery Cell Surveillance Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS 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	≥ 1.200 AND Not more than 0.010 below average of all connected cells	≥ 1.200

(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 float current is < 2 amps when on float charge.

(c) A battery float current of < 2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When float current is used in lieu of specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Vital Inverters – Operating

LCO 3.8.6 Four vital inverters shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One vital inverter inoperable.	A.1 ----------NOTES-------- 1. Enter applicable Conditions and Required Actions of LCO 3.8.8, "Distribution Systems - Operating," with any 120 VAC Vital Instrumentation power panelboard de-energized. 2. The Completion Time is reduced when in Condition L of LCO 3.8.1. ---------- Restore inverter 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.	12 hours 84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify correct inverter voltage, frequency, and alignment to required 120 VAC Vital Instrumentation power panelboards.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Vital Inverters – Shutdown

LCO 3.8.7 Vital Inverters shall be OPERABLE to support the onsite 120 VAC Vital Instrumentation power panelboard(s) required by LCO 3.8.9, "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 vital inverters inoperable.	A.1 Declare affected required equipment 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 involving positive reactivity additions.	Immediately
	AND	
	A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, frequency, and alignments to required 120 VAC Vital Instrumentation power panelboards.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Distribution Systems – Operating

LCO 3.8.8 AC, DC, and AC vital electrical power distribution systems shall be OPERABLE as follows:

a. Two main feeder buses each connected to two or more ES power strings;

b. Three ES power strings;

c. 125 VDC Vital I&C power panelboards DIA, DIB, DIC, and DID;

d. For Units 2 or 3, 125 VDC Vital I&C power panelboards 1DIC and 1DID;

e. 230 kV switchyard 125 VDC power panelboards DYA, DYB, DYC, DYE, DYF, and DYG; and

f. 120 VAC Vital Instrumentation power panelboards KVIA, KVIB, KVIC, and KVID.

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

ACTIONS

----------NOTE----------
The Completion Times for Required Actions A through F are reduced when in Condition L of LCO 3.8.1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One main feeder bus inoperable or not connected to two ES power strings.	A.1 Restore main feeder bus to OPERABLE status and connect to at least two ES power strings.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One ES power string inoperable.	B.1 Restore ES power string to OPERABLE status.	24 hours
C. One of the unit's 125 VDC Vital I&C power panelboard inoperable.	C.1 Restore panelboard to OPERABLE status.	24 hours
D. ---------NOTES--------- 1. Separate Condition entry is allowed for each 230 kV switchyard 125 VDC power panelboard. 2. Not applicable to the following loss of function combinations: DYA and DYE, DYB and DYF, and DYC and DYG. ---------- One or more required 230 kV switchyard 125 VDC power panelboards inoperable.	D.1 Restore required panelboards to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. ----------NOTE---------- Only applicable to Units 2 and 3. ---------- One required 125 VDC Unit 1 Vital I&C power panelboard inoperable.	E.1 Restore panelboard to OPERABLE status.	24 hours
F. One 120 VAC Vital Instrumentation power panelboard inoperable.	F.1 Restore panelboard to OPERABLE status.	4 hours when Condition due to KVIA or KVIB being inoperable AND 24 hours when Condition due to KVIC or KVID being inoperable
G. Required Action and associated Completion Time not met.	G.1 Be in MODE 3. AND G.2 Be in MODE 5.	12 hours 84 hours
H. Entry into two or more Conditions that result in a loss of function	H.1 Enter LCO 3.0.3	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
3.8.8.1	Verify correct breaker alignments and voltage to required main feeder buses.	7 days
3.8.8.2	Verify correct breaker alignments and voltage availability to required ES power strings, 125 VDC Vital I&C power panelboards, 230 kV Switchyard 125 VDC power panelboards and 120 VAC Vital Instrumentation power panelboards.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems – Shutdown

LCO 3.8.9 The necessary portion of main feeder buses, ES power strings, 125 VDC Vital I&C power panelboards, 230 kV Switchyard 125 VDC power panelboards and 120 VAC Vital Instrumentation power panelboards 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 main feeder buses, ES power strings, 125 VDC Vital I&C power panelboards, 230 kV Switchyard 125 VDC power panelboards or 120 VAC Vital Instrumentation power panelboards inoperable.	A.1 Declare associated supported required equipment 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 involving positive reactivity additions.	Immediately
	AND	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate actions to restore required main feeder buses, ES power strings, 125 VDC Vital I&C power panelboards, 230 kV Switchyard 125 VDC power panelboards or 120 VAC Vital Instrumentation power panelboards to OPERABLE status.	Immediately
	AND	
	A.2.5 Declare associated required decay heat removal loop(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments and voltage to required main feeder buses.	7 days
SR 3.8.9.2	Verify correct breaker alignments and voltage availability to required ES power strings, 125 VDC Vital I&C power panelboards, 230 kV Switchyard 125 VDC power panelboards and 120 VAC Vital Instrumentation power panelboards.	7 days

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Reactor Coolant System and the refueling canal 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 action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within the limit specified in the COLR.	72 hours

3.9 REFUELING OPERATIONS

3.9.2 Nuclear Instrumentation

LCO 3.9.2

a. One source range neutron flux monitor shall be OPERABLE, and

b. One additional source range neutron flux monitor shall be OPERABLE during CORE ALTERATIONS and during positive reactivity additions.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required source range neutron flux monitor inoperable during CORE ALTERATIONS or positive reactivity additions.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend positive reactivity additions.	Immediately
B. No OPERABLE source range neutron flux monitors.	B.1	Initiate action to restore one source range neutron flux monitor 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 a minimum of four bolts;

b. One door in each air lock closed; and

----------NOTE----------
An emergency air lock door is not required to be closed when a temporary cover plate is installed.
---

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere either:

1. closed by a manual, non-automatic power operated or automatic isolation valve, blind flange, or equivalent, or

2. capable of being closed by an OPERABLE Reactor Building Purge supply and exhaust isolation signal.

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 Reactor Building Purge supply and exhaust isolation valve that is not locked, sealed or otherwise secured in the isolation position actuates to the isolation position on an actual or simulated high radiation actuation signal.	Once each refueling outage prior to CORE ALTERATIONS or movement of irradiated fuel assemblies within containment

3.9 REFUELING OPERATIONS

3.9.4 Decay Heat Removal (DHR) and Coolant Circulation – High Water Level

LCO 3.9.4 One DHR loop shall be OPERABLE and in operation.

---NOTE---

The required DHR loop may not be in operation for ≤ 1 hour per 8 hour period, provided no operations are permitted that would cause reduction of the Reactor Coolant System boron concentration.

APPLICABILITY: MODE 6 with the water level ≥ 21.34 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. DHR 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 DHR 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 DHR loop is in operation.	12 hours

3.9 REFUELING OPERATIONS

3.9.5 Decay Heat Removal (DHR) and Coolant Circulation – Low Water Level

LCO 3.9.5 Two DHR loops shall be OPERABLE, and one DHR loop shall be in operation.

APPLICABILITY: MODE 6 with the water level < 21.34 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Less than required number of DHR loops OPERABLE.	A.1	Initiate action to restore DHR loop to OPERABLE status.	Immediately
	OR		
	A.2	Initiate action to establish ≥ 21.34 ft of water above the top of reactor vessel flange.	Immediately
B. No DHR 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 DHR loop to OPERABLE status and to operation.	Immediately
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one DHR loop is in operation.	12 hours
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to the required DHR pump that is not in operation.	7 days

3.9 REFUELING OPERATIONS

3.9.6 Fuel Transfer Canal Water Level

LCO 3.9.6 Fuel transfer canal water level shall be maintained ≥ 21.34 ft above the top of the 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. Fuel transfer canal water level not within limit.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend movement of irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify fuel transfer canal water level is ≥ 21.34 ft above the top of reactor vessel flange.	24 hours

3.9 REFUELING OPERATIONS

3.9.7 Unborated Water Source Isolation Valves

LCO 3.9.7 Each valve used to isolate unborated water sources shall be secured in the closed position.

APPLICABILITY: MODE 6.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each unborated water source isolation valve.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ----------NOTE---------- Required Action A.3 must be completed whenever Condition A is entered. ---------- One or more valves not secured in closed position.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Initiate actions to secure valve in closed position.	Immediately
	AND		
	A.3	Perform SR 3.9.1.1.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify each valve that isolates unborated water sources is secured in the closed position.	31 days

3.10 STANDBY SHUTDOWN FACILITY

3.10.1 Standby Shutdown Facility (SSF)

LCO 3.10.1 The SSF Instrumentation and the following SSF Systems shall be OPERABLE:

a. SSF Auxiliary Service Water System;

b. SSF Portable Pumping System;

c. SSF Reactor Coolant.Makeup System; and

d. SSF Power System.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

NOTE

LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SSF Auxiliary Service Water System inoperable.	A.1 Restore SSF Auxiliary Service Water System to OPERABLE status.	7 days
B. SSF Portable Pumping System inoperable.	B.1 Restore SSF Portable Pumping System to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. SSF Reactor Coolant Makeup System inoperable.	C.1	Restore SSF Reactor Coolant Makeup System to OPERABLE status.	7 days
D. SSF Power System inoperable.	D.1	Restore SSF Power System to OPERABLE status.	7 days
E. SSF Instrumentation inoperable.	E.1	Restore SSF Instrumentation to OPERABLE status.	7 days
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met when SSF Systems or Instrumentation are inoperable due to maintenance.	F.1	Restore to OPERABLE status.	----------NOTE---------- Not to exceed 45 days cumulative per calendar year ---------- 45 days from discovery of initial inoperability
G. Required Action and associated Completion Time of Condition F not met. OR Required Action and associated Completion Time of Condition A, B, C, D, or E not met for reasons other than Condition F.	G.1 AND G.2	Be in MODE 3. Be in MODE 4.	12 hours 84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.1.1	----------NOTE---------- Not applicable to RCS temperature instrument channels. ---------- Perform CHANNEL CHECK for each required SSF instrument channel.	7 days
SR 3.10.1.2	Verify required SSF battery terminal voltage is ≥ 125 VDC on float charge.	7 days
SR 3.10.1.3	Verify the day tank contains ≥ 200 gallons of fuel.	31 days
SR 3.10.1.4	Verify the underground oil storage tank contains ≥ 25,000 gallons of fuel.	31 days
SR 3.10.1.5	----------NOTE---------- All DG starts may be preceded by an engine prelube period followed by a warmup period prior to loading. ---------- Verify the DG starts from standby conditions and achieves steady state voltage and frequency.	31 days
SR 3.10.1.6	Verify DG required air start receiver pressure is ≥ 150 psig.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.1.7	Verify the fuel oil transfer system operates to automatically transfer fuel oil from the storage tank to the day tank.	92 days
SR 3.10.1.8	Verify the fuel oil properties of the fuel oil stored in the day tank and underground storage tank are tested in accordance with, and maintained within the limits of the Diesel Fuel Oil Testing Program.	92 days
SR 3.10.1.9	----------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. All DG starts may be preceded by an engine prelube period followed by a warmup period prior to loading. ---------- Verify the SSF DG is synchronized and loaded and operated for ≥ 60 minutes at a load ≥ 3000 kW.	92 days
SR 3.10.1.10	Verify for required SSF battery that the cells, cell plates and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	12 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.1.11	Verify for required SSF battery that the cell to cell and terminal connections are clean, tight and coated with anti-corrosion material.	12 months
SR 3.10.1.12	Verify battery capacity of required battery is adequate to supply, and maintain in OPERABLE status, the required maximum loads for the design duty cycle when subjected to a battery service test.	12 months
SR 3.10.1.13	Perform CHANNEL CALIBRATION for each required SSF instrument channel.	18 months
SR 3.10.1.14	Verify OPERABILITY OF SSF valves in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program
SR 3.10.1.15	----------NOTES---------- Not applicable to the SSF submersible pump. ---------- Verify the developed head of each required SSF pump at the flow test point is greater than or equal to the required developed head.	 In accordance with the Inservice Testing Program
SR 3.10.1.16	Verify the developed head of the SSF submersible pump at the flow test point is greater than or equal to the required developed head.	2 years

3.10 STANDBY SHUTDOWN FACILITY

3.10.2 Standby Shutdown Facility (SSF) Battery Cell Parameters

LCO 3.10.2 Battery cell parameters for the SSF batteries shall be within the limits of Table 3.10.2-1.

APPLICABILITY: When the associated SSF Power System battery is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Required SSF battery with one or more battery cell parameters not within Category A or B limits.	A.1	Verify pilot cell(s) electrolyte level and float voltage meet Table 3.10.2-1 Category C values.	1 hour
	AND		
	A.2	Verify battery cell parameters meet Table 3.10.2-1 Category C values.	24 hours AND Once per 7 days thereafter
	AND		
	A.3	Restore battery cell parameters to Category A and B limits of Table 3.10.2-1.	90 days

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.2.1	Verify battery cell parameters meet Table 3.10.2-1 Category A limits.	7 days
SR 3.10.2.2	Verify battery cell parameters meet Table 3.10.2-1 Category B limits.	92 days
SR 3.10.2.3	Verify average electrolyte temperature of representative cells is ≥ 60°F.	92 days

Table 3.10.2-1 (page 1 of 1)
Battery Cell Surveillance Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS 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	≥ 1.200 <u>AND</u> Not more than 0.010 below average of all connected cells	≥ 1.200

(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 float current is < 2 amps when on float charge.

(c) A battery float current of < 2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When float current is used in lieu of specific gravity requirements, the specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

4.0 DESIGN FEATURES

4.1 Site Location

The Oconee Nuclear Station is approximately eight miles northeast of Seneca, South Carolina. The minimum distance from the reactor center line to the boundary of the exclusion area and to the outer boundary of the low population zone, as defined in 10 CFR 100.3, shall be one mile and six miles respectively.

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain 177 fuel assemblies. Each assembly shall consist of a matrix of zirconium alloy clad 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 Assemblies

The reactor core shall contain 61 full-length CONTROL ROD Assemblies (CRAs) and 8 APSR assemblies. The full-length CRAs and APSR assemblies shall conform to the design described in the UFSAR or reload report.

4.3 Fuel Storage

4.3.1 Criticality

The spent fuel storage racks are designed and shall be maintained with:

a. Fuel assemblies having a maximum nominal U-235 enrichment of 5.0 weight percent;

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

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 UFSAR;

c. A nominal 10.65 inch center to center distance between fuel assemblies placed in spent fuel storage racks serving Units 1 and 2;

d. A nominal 10.60 inch center to center distance between fuel assemblies placed in spent fuel storage racks serving Unit 3;

e. A nominal 25.75 inch center to center spacing between fuel assemblies placed in the fuel transfer canal.

4.3.2 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1312 fuel assemblies in the spent fuel storage racks serving Units 1 and 2 and 825 fuel assemblies in the spent fuel storage racks serving Unit 3. In addition, up to 4 assemblies and/or 1 failed fuel container may be stored in each fuel transfer canal when the canal is at refueling level. Spent fuel may also be stored in the Oconee Nuclear Station Independent Spent Fuel Storage Installation.

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

5.1.1 The Station Manager shall be responsible for overall plant operation and shall delegate in writing the succession to this responsibility during his absence.

The Station Manager or his designee shall approve, prior to implementation, each proposed test, experiment or modification to systems or equipment that affect nuclear safety.

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 UFSAR;

b. The Station Manager shall be responsible for overall safe operation of the plant and shall have control over those onsite activities necessary for safe operation and maintenance of the plant;

c. The Vice-President, Oconee Nuclear Site, 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;

d. The Senior Vice President, Nuclear Generation Department, will be the Senior Nuclear Executive and have corporate responsibility for overall nuclear safety; and

e. 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 Station Staff

a. A non-licensed operator shall be onsite for each reactor containing fuel and an additional non-licensed operator shall be onsite for each control room from which a reactor is operating in MODES 1, 2, 3, or 4.

5.2 Organization

5.2.2 Station Staff (continued)

b. At least one licensed Reactor Operator (RO) per unit 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. Shift crew composition may be less than the minimum requirement of 10 CFR 50.54(m)(2)(i) and 5.2.2.a and 5.2.2.g for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements.

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

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, Non-Licensed operators, and key maintenance personnel).

Any deviation from the above guidelines shall be authorized in advance by the Station Manager 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 periodically reviewed to ensure that excessive hours have not been assigned. Routine deviation from the above guidelines is not authorized.

f. The Operations Superintendent or Shift Operations Manager shall hold an SRO license.

g. The Shift Work Manager, whose functions include those of a 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. In addition, the Shift Work Manager shall meet the qualifications for STA specified by the Commission Policy Statement on Engineering Expertise on Shift.

5.2 Organization

5.2.2 Station Staff (continued)

h. The qualified manpower necessary for achieving alternate shutdown using the Standby Shutdown Facility (SSF) will be available at the plant at all times. The manpower necessary to operate the SSF will be exclusive of the fire brigade and the minimum operating shift that is required to be present in the Control Room.

5.0 ADMINISTRATIVE CONTROLS

5.3 Station Staff Qualifications

5.3.1 Each member of the station staff shall meet or exceed the minimum qualifications described in Section 4 of ANSI/ANS-3.1-1978, "Selection and Training of Nuclear Power Plant Personnel" except for the Operations Superintendent and the Shift Operations Manager.

The Operations Superintendent shall have a minimum of eight years of responsible nuclear or fossil station experience, of which a minimum of three years shall be nuclear station experience. A maximum of two years of the remaining five years of experience may be fulfilled by academic training, or related technical training, on a one-for-one time basis.

The Shift Operations Manager shall have a minimum of eight years of responsible nuclear or fossil station experience, of which a minimum of three years shall be nuclear station experience. A maximum of two years of the remaining five years of experience may be fulfilled by academic training, or related technical training on a one-for-one time basis.

5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

5.4.1 Written procedures shall be established, implemented, and maintained covering the following activities:

a. The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978;

b. The emergency operating procedures required to implement the requirements of NUREG-0737 and NUREG-0737, Supplement 1, as stated in Generic Letter 82-33;

c. Quality assurance for effluent and environmental monitoring;

d. Fire Protection Program Implementation; and

e. All programs specified in Specification 5.5.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

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

5.5.1 Offsite Dose Calculation Manual (ODCM)

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.

Licensee initiated changes to the ODCM:

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

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

   2. a determination that the change(s) do not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations;

b. Shall become effective after the approval of the Station Manager; and

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5.2 Containment Leakage Rate Testing Program

This program provides controls for implementation of the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions for Type A testing.

5.5 Programs and Manuals

5.5.2 Containment Leakage Rate Testing Program (continued)

This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995. Containment system visual examinations required by Regulatory Guide 1.163, Regulatory Position C.3 shall be performed as follows:

1. Accessible concrete surfaces and post-tensioning system component surfaces of the concrete containment shall be visually examined prior to initiating SR 3.6.1.1 Type A test. These visual examinations, or any portion thereof, shall be performed no earlier than 90 days prior to the start of refueling outages in which Type A tests will be performed. The validity of these visual examinations will be evaluated should any event or condition capable of affecting the integrity of the containment system occur between the completion of the visual examinations and the Type A test.

2. Accessible interior and exterior surfaces of metallic pressure retaining components of the containment system shall be visually examined at least three times every ten years, including during each shutdown for SR 3.6.1.1 Type A test, prior to initiating the Type A test.

Type B and C testing shall be implemented in the program in accordance with the requirements of 10 CFR 50, Appendix J, Option A.

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 59 psig.

The maximum allowable containment leakage rate, L_a, at P_a, shall be 0.25% of the containment air weight per day.

Leakage rate acceptance criteria are:

a. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60\ L_a$ for the Type B and Type C tests, and $\leq 0.75\ L_a$ for Type A tests;

b. Leakage $> 0.50\ L_a$ shall be to the penetration room.

The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

5.5 Programs and Manuals (continued)

5.5.3 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. These systems include High Pressure Injection, Low Pressure Injection, Reactor Building Spray, Gaseous Waste Disposal, Makeup and Purification, Chemical Addition and Sampling, and Coolant Treatment. 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.

5.5.4 Post Accident Sampling

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

a. Training of personnel;

b. Procedures for sampling and analysis; and

c. Provisions for maintenance of sampling and analysis equipment.

5.5.5 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 UFSAR Chapter 16, shall be implemented by procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

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

b. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to ten times 10 CFR Part 20.1001 - 20.2401, Appendix B, Table 2, Column 2;

5.5 Programs and Manuals

5.5.5 Radioactive Effluent Controls Program (continued)

c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM;

d. Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released from each unit to unrestricted areas, conforming to 10 CFR 50, Appendix I;

e. Determination of cumulative 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 shall be limited to the following:

   1. For noble gases; Less than or equal to a dose rate of 500 mrems/yr to the total body and less than or equal to a dose rate of 3000 mrems/yr to the skin, and

   2. For iodine-131, for iodine-133, for tritium, and for all radionuclides in particulate form with half-lives greater than 8 days; less than or equal to a dose rate of 1500 mrems/yr to any organ.

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

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

5.5 Programs and Manuals

5.5.5 Radioactive Effluent Controls Program (continued)

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.

k. Descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Radioactive Effluent Release Reports required by Specification 5.6.2 and Specification 5.6.3.

Licensee initiated changes to the Radiological Effluent Controls of the UFSAR:

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

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

2. A determination that the change(s) maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations or a determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations;

b. Shall become effective after approval of the station manager.

c. Shall be submitted to the Commission in the form of a complete, legible copy of the entire Section 16.11 of the UFSAR as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any changes to Section 16.11 of the UFSAR 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/year) the change was implemented.

5.5.6 Component Cyclic or Transient Limit

This program provides controls to track the UFSAR, Section 5.2.1.4, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5 Programs and Manuals (continued)

5.5.7 Pre-Stressed Concrete Containment Tendon Surveillance Program

This program provides controls for monitoring any tendon degradation in pre-stressed concrete containments, including effectiveness of its corrosion protection medium, to ensure containment structural integrity. The program shall include baseline measurements prior to initial operations. The Tendon Surveillance Program, inspection frequencies, and acceptance criteria shall be in accordance with Section XI, Subsection IWL of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10 CFR 50.55a, as amended by relief granted in accordance with 10 CFR 50.55a(a)(3).

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

5.5.8 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for inspection of each reactor coolant pump flywheel. At approximately three-year intervals, the bore and keyway of each reactor coolant pump flywheel shall be subjected to an inplace, volumetric examination. Whenever maintenance or repair activities necessitate flywheel removal, a urface examination of exposed surfaces and a complete volumetric examination shall be performed if the interval measured from the previous such inspection is greater than 6 2/3 years. The interval may be extended up to one year to permit inspections to coincide with a planned outage.

5.5.9 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 pumps and valves:

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

5.5 Programs and Manuals

5.5.9 Inservice Testing Program (continued)

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

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

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

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

5.5.10 Steam Generator (SG) Tube Surveillance Program

This program provides the controls for SG tube surveillance. The program shall include the following:

a. Examination Methods

Inservice inspection of steam generator tubing shall include non-destructive examination by eddy-current testing or other equivalent techniques. The inspection equipment shall provide a sensitivity that will detect defects with a penetration of 20 percent or more of the minimum allowable as-manufactured tube wall thickness.

5.5 Programs and Manuals

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

b. Acceptance Criteria

The steam generator shall be considered operable after completion of the specified actions. All tubes examined exceeding the repair limit shall be repaired by sleeving or rerolling or removed from service (e.g., plugged, stabilized).

For Units 1 and 3, there are a number of steam generator tubes which exceed the tube repair limit as a result of tube end anomalies. These tubes are temporarily exempted from the requirements for sleeving, rerolling or removal from service, until repaired during or before the next Unit 1 and Unit 3 refueling outages (Unit 1 EOC 18, Unit 3 EOC 17 refueling outages, respectively). An analysis has been performed which confirms the operability of Units 1 and 3 will not be impacted with these tubes in service until the next refueling outage on each of these units.

c. Selection and Testing

The steam generator tube minimum sample size, inspection result classification, and the corresponding action required shall be as specified in Table 5.5.10-1. The inservice inspection of steam generator tubes shall be performed at the frequencies specified in 5.5.10.d and the inspected tubes shall be verified acceptable per 5.5.10.e. The tubes selected for each inservice inspection shall include at least 3% of the total number of tubes in both steam generators, with one or both steam generators being inspected. The tubes selected for these inspections shall be selected on a random basis except:

1. The first sample inspection during each inservice inspection of each steam generator shall include:

   a. All tubes that previously had detectable wall penetrations (>20%) and have not been plugged or sleeve repaired in the affected area.

   b. At least 50% of the tubes inspected shall be in those areas where experience has indicated potential problems.

   c. A tube adjacent to any selected tube which does not permit passage of the eddy-current probe for tube inspection.

5.5 Programs and Manuals

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

2. Tubes in the following Group(s) may be excluded from the first sample if all tubes in a Group in both OTSG are inspected. No credit will be taken for these tubes in meeting minimum sample size requirements.

   Group A-1: Tubes within one, two, or three rows of the open inspection lane.

3. All tubes which have been repaired using the reroll process will have the new roll area inspected during the inservice inspection.

4. The tubes selected as the second and third samples (if required by Table 5.5.10-1) during each inservice inspection may be subjected to less than a full tube inspection provided:

   a. The tubes selected for these samples include the tubes from those areas of the tubesheet array where tubes with imperfections were previously found.

   b. The inspections include those portions of the tubes where imperfections were previously found.

   The results of each sample inspection shall be classified into one of the following three categories:

Category	Inspection Results
C-1	Less than 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.
C-2	One or more tubes, but no more than 1% of the total tubes inspected are defective, or between 5% and 10% of the total tubes inspected are degraded tubes.
C-3	More than 10% of the total tubes inspected are degraded tubes or more than 1% of the inspected tubes are defective.

NOTES:

(1) In all inspections, previously degraded tubes must exhibit significant (>10%) further wall penetrations to be included in the above percentage calculations.

5.5 Programs and Manuals

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

(2) Where special inspections are performed pursuant to 5.5.10.c.2, defective or degraded tubes found as a result of the inspection shall be included in determining the Inspection Results Category for that special inspection but need not be included in determining the Inspection Results Category for the general steam generator inspection, unless the mechanism of degradation is random in nature.

(3) Where special inspections are performed pursuant to 5.5.10.c.2, defective or degraded tube indications found in the new roll area as a result of the inspection and any indications found in the originally rolled region of the rerolled tube, need not be included in determining the Inspection Results Category for the general steam generator inspection.

d. Inspection Intervals

The above required inservice inspections of steam generator tubes shall be performed at the following frequencies.

1. Inservice inspections shall be performed at intervals of not less than 12 nor more than 24 calendar months after the previous inspection. If the results of two consecutive inspections following service under all volatile treatment (AVT) conditions fall into the C-1 category or if two consecutive inspections demonstrate that previously observed degradation has not continued and no additional degradation has occurred, the inspection interval may be extended to a maximum of 40 months.

2. If the results of the inservice inspection of a steam generator performed in accordance with Table 5.5.10-1 at 40 month intervals fall in Category C-3, subsequent inservice inspections shall be performed at intervals of not less than 10 months nor more than one fuel cycle after the previous inspection. The increase in inspection frequency shall apply until a subsequent inspection meets the conditions specified in 5.5.10.d.1 and the interval can be extended to a maximum of 40 months.

3. Additional, unscheduled inservice inspections shall be performed on each steam generator in accordance with the first sample inspection specified in Table 5.5.10-1 during the shutdown subsequent to any of the following conditions:

5.5 Programs and Manuals

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

a. A seismic occurrence greater than the Operating Basis Earthquake,

b. A loss-of-coolant accident requiring actuation of the engineered safeguards, or

c. A main steam line or feedwater line break.

4. After primary to secondary leakage in excess of the limits of Specification 3.4.13, an inspection of the affected steam generator will be performed in accordance with the following criteria:

a. If the leaking tube is in a Group as defined in Section 5.5.10.c.2, all of the tubes in this Group in this steam generator will be inspected. If the results of this inspection fall into the C-3 category, additional inspections will be performed in the same Group in the other steam generator.

b. If the leaking tube has been repaired by the reroll process and is leaking in the new roll area, all tubes in the steam generator that have been repaired by the reroll process will have the new roll area inspected. If the results of this inspection fall into the C-3 category, additional inspections will be performed in the new roll area in the other steam generator.

c. If the leaking tube is not in a Group as defined in 5.5.10.d.4.a, then an inspection will be performed on the affected steam generator in accordance with Table 5.5.10-1 with an initial inspection sample size of 6% of the tubes in the affected steam generator.

e. Definitions

As used in this specification:

1. Imperfection means an exception to the dimensions, finish or contour of a tube from that required by fabrication drawings or specifications. Eddy-current testing indications below 20% of the nominal tube or sleeve wall thickness, if detectable, may be considered as imperfections.

2. Degradation means a service-induced cracking, wastage, wear or general corrosion occurring on either the inside or outside of a tube or a sleeve.

5.5 Programs and Manuals

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

3. Degraded Tube means a tube or a sleeve containing imperfections ≥ 20% of the nominal wall thickness caused by degradation.

4. % Degradation means the percentage of the tube or sleeve wall thickness affected or removed by degradation.

5. Defect means an imperfection of such severity that it exceeds the repair limit. A tube or sleeve containing a defect is defective.

6. Repair Limit means the imperfection depth beyond which the tube shall be either removed from service by plugging or repaired by sleeving or rerolling because it may become unserviceable prior to the next inspection; it is equal to 40% of the nominal tube or sleeve wall thickness. Axial tube imperfections of any depth observed between the primary side surface of the tube sheet clad and the end of the tube are excluded from this repair limit.

   The Babcock and Wilcox process (or method) equivalent to the method described in report, BAW-1823P, Revision 1 will be used for sleeving repairs.

   The rerolling repair process will only be used to repair tubes with defects in the upper tubesheet area. The rerolling repair process will be performed only once per steam generator tube using a 1 inch reroll length. The new roll area must be free of degradation in order for the repair to be considered acceptable. The rerolling process used by Oconee is described in the Topical Report, BAW-2303, Revision 3.

7. Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 5.5.10.d.

8. Tube Inspection means an inspection of the steam generator tube from the point of entry completely to the point of exit. The degraded tube above the new roll area can be excluded from future periodic inspection requirements because it is no longer part of the pressure boundary once the repair roll is installed.

TABLE 5.5.10-1 (Page 1 of 2)
STEAM GENERATOR TUBE INSPECTION

1st Sample Inspection			2nd Sample Inspection		3rd Sample Inspection	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of S tubes per S.G. (1)	C-1	None	N/A	N/A	N/A	N/A
	C-2	Plug or repair defective tubes and inspect additional 2S tubes in this SG.	C-1	None	N/A	N/A
			C-2	Plug or repair defective tubes and inspect additional 4S tubes in this SG.	C-1	None
					C-2	Plug or repair defective tubes.
					C-3	Plug or repair defective tubes and perform action for C-3 result of 1st Sample.
			C-3	Plug or repair defective tubes and perform actions for C-3 results on 1st Sample.	N/A	N/A

(continued)

TABLE 5.5.10-1 (Page 2 of 2)
STEAM GENERATOR TUBE INSPECTION

1st Sample Inspection			2nd Sample Inspection		3rd Sample Inspection	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
(continued)	C-3	Inspect 6S tubes in the S.G, plug or repair defective tubes and inspect 2S tubes in the other S.G. Perform follow-on inspections in the other S.G. in accordance with results of the above inspection as applied to Table 5.5.10-1 Prompt Notification to NRC pursuant to 10 CFR 50.72	C-1	N/A	N/A	N/A
			C-2	N/A	N/A	N/A
			C-3 (2)	(a) If defects can be localized to an affected area, inspect all tubes in affected area and plug or repair defective tubes. (b) If defects cannot be localized to an affected area, inspect all tubes in this S.G. and plug or repair defective tubes.	C-1 C-2 C-3	N/A N/A N/A

Notes: (1) S=3(N/n)% Where N is the number of steam generators in the unit, and n is the number of steam generators inspected during an inspection.

(2) Following an 18% random inspection (C-3 category inspection) an unaffected area is identified. The unaffected area will be logically and consistently defined based on generator design, defect location and characteristics. The criteria for accepting an area as unaffected depends on the number of defects found in the sample inspected in that area and are established such that there is a 0.05 or smaller probability of accepting the area as unaffected if it contains 30 or more defective tubes.

5.5 Programs and Manuals (continued)

5.5.11 Secondary Water Chemistry

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation. 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;

d. Procedures for the recording and management of data;

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

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

5.5.12 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of filter ventilation systems at the frequencies specified in Regulatory Guide 1.52, Revision 2.

The VFTP is applicable to the Penetration Room Ventilation System (PRVS), the Control Room Ventilation System (CRVS) Booster Fan Trains, and the Spent Fuel Pool Ventilation System (SFPVS).

a. Demonstrate, for the PRVS, that a dioctyl phthalate (DOP) test of the high efficiency particulate air (HEPA) filters shows ≥ 99% removal when tested in accordance with ANSI N510-1975 at the system design flow rate ± 10%.

b. Demonstrate, for the CRVS Booster Fan Trains, that a DOP test of the HEPA filters shows ≥ 99.5% removal when tested at in accordance with ANSI N510-1975 at the system design flow rate ± 10%.

c. Demonstrate, for the PRVS, that a halogenated hydrocarbon test of the carbon adsorber shows ≥ 99% removal when tested in accordance with ANSI N510-1975 at the system design flow rate ± 10%.

5.5 Programs and Manuals

5.5.12 Ventilation Filter Testing Program (VFTP) (continued)

d. Demonstrate, for the CRVS Booster Fan Trains, that a halogenated hydrocarbon test of the carbon adsorber shows ≥ 99% removal when tested at in accordance with ANSI N510-1975 at the system design flow rate ± 10%.

e. Demonstrate, for the CRVS Booster Fan Trains, PRVS and SFPVS, that a laboratory test of a sample of the carbon adsorber shows ≥ 90% radioactive methyl iodide removal when tested in accordance with ASTM D3803-1989 (30°C, 95% RH).

f. Demonstrate, for the PRVS, that the pressure drop across the combined HEPA filters and carbon adsorber banks is < 6 in. of water at the system design flow rate ± 10%.

g. Demonstrate, for the CRVS Booster Fan Trains, that the pressure drop across the pre-filter is ≤ 1 in. of water and the pressure drop across the HEPA filters is ≤ 2 in. of water at the system design flow rate ± 10%.

h. Demonstrate, for the SFPVS, that a dioctyl phthalate (DOP) test of the high efficiency particulate air (HEPA) filters shows ≥ 99% removal when tested in accordance with ANSI N510-1975 at the system design flow rate ± 10%.

i. Demonstrate, for the SFPVS, that a halogenated hydrocarbon test of the carbon adsorber shows ≥ 99% removal when tested in accordance with ANSI N510-1975 at the system design flow rate ± 10%.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.5.13 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the waste gas holdup tanks and the quantity of radioactivity contained in waste gas holdup tanks, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks. The gaseous radioactivity quantities shall be determined. The liquid radwaste quantities shall be determined by analyzing a representative sample of the tank's contents at least once per 7 days when radioactive materials are being added to the tank.

5.5 Programs and Manuals

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

The program shall include:

a. The limit for concentration of hydrogen in the waste gas holdup tanks and a surveillance program to ensure the limit is maintained. The limit 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 waste gas holdup tank is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual at the nearest exclusion area boundary, in the event of an uncontrolled release of the tank's contents.

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 10 curies excluding tritium and dissolved or entrained gases.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

5.5.14 Standby Shutdown Facility (SSF) Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of SSF 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 acceptability of Day Tank and Underground Storage Tank fuel oil for use by determining that the fuel oil viscosity, water and sediment are within limits.

5.5.15 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

5.5 Programs and Manuals

5.5.15 Technical Specifications (TS) Bases Control Program (continued)

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

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

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

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

d. Proposed changes that meet the criteria of 5.5.15.b.1 or 5.5.15.b.2 above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.16 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

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

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

5.5 Programs and Manuals

5.5.16 Safety Function Determination Program (SFDP) (continued)

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 the system(s) supported by the inoperable support system is also inoperable; or

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

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

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

5.5.17 Backup Method for Determining Subcooling Margin

This program ensures the capability to accurately monitor the Reactor Coolant System Subcooling Margin. The program shall include the following:

a. Training of personnel, and

a. Procedures for monitoring.

5.5.18 KHU Commercial Power Generation Testing Program

The KHU Commercial Power Generation Testing Program shall include the following and shall be met during periods of KHU commercial power generation:

a. Verify upon an actual or simulated actuation signal, each KHU's overhead tie breaker and underground tie breaker actuate to the correct position from an initial condition of commercial power generation every 18 months.

b. Verify upon an actual or simulated actuation signal, each KHU's frequency is $\leq$ 66 Hz in $\leq$ 23 seconds from an initial condition of commercial power generation every 18 months.

5.5 Programs and Manuals

5.5.18 KHU Commercial Power Generation Testing Program (continued)

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the KHU Commercial Power Generation Testing Program surveillance frequencies.

5.5.19 Lee Combustion Turbine Testing Program

The Lee Combustion Turbine (LCT) Testing program shall include the following and shall be met when a LCT is used to comply with Required Actions of Specification 3.8.1, "AC Sources-Operating" or as a emergency power source as allowed by LCO 3.8.2, "AC Sources-Shutdown":

a. Verify an LCT can energize both standby buses using 100kV line electrically separated from system grid and offsite loads every 12 months.

b. Verify an LCT can supply equivalent of one Unit's maximum safeguard loads plus two Unit's MODE 3 loads when connected to system grid every 12 months.

c. Verify an LCT can provide equivalent of one Unit's maximum safeguard loads within one hour through 100kV line electrically separated from system grid and offsite loads every 18 months.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Lee Combustion Turbine Testing Program surveillance frequencies.

5.5.20 Battery Discharge Testing Program

The Battery Discharge Testing Program shall include the following and shall be met for batteries used to comply with LCO 3.8.3, "DC Sources Operating."

a. Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test once every 60 months. This frequency shall be reduced to 12 months when battery shows degradation, or has reached 90% of the expected life with capacity < 100% of manufacturer's rating, and 24 months when battery has reached 90% of the expected life with capacity ≥ 100% of manufacturer's rating.

5.5 Programs and Manuals

5.5.20 Battery Discharge Testing Program (continued)

b. If battery capacity is determined to be < 80% of the manufacturer's rating an OPERABILITY evaluation shall be initiated immediately and completed within the guidelines of the Oconee OPERABILITY program. If the OPERABILITY evaluation determines the battery OPERABLE, battery capacity shall be restored to ≥ 80% of the manufacturer's rating within a time frame commensurate with the safety significance of the issue. Otherwise, the battery shall be declared inoperable and the applicable Condition of Specification 3.8.3 shall be entered.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Battery Discharge Testing Program surveillance frequencies.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

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

5.6.1 Occupational Radiation Exposure Report

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

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

5.6.2 Annual Radiological Environmental Operating Report

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

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year.

The report shall include summaries, interpretations, and analyses of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

5.6 Reporting Requirements (continued)

5.6.3 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 in the previous year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR part 50, Appendix I, Section IV.B.1.

5.6.4 Monthly Operating Reports

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

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

Core operating limits shall be established, determined and issued in accordance with the following:

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:

   1. Shutdown Margin limit for Specification 3.1.1;

   2. Moderator Temperature Coefficient limit for Specification 3.1.3;

   3. Physical Position, Sequence and Overlap limits for Specification 3.2.1 Rod Insertion Limits;

   4. AXIAL POWER IMBALANCE operating limits for Specification 3.2.2;

   5. QUADRANT POWER TILT (QPT) limits for Specification 3.2.3;

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

6. Nuclear Overpower Flux/Flow/Imbalance and RCS Variable Low Pressure allowable value limits for Specification 3.3.1;

7. RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits for Specification 3.4.1

8. Core Flood Tanks Boron concentration limits for Specification 3.5.1;

9. Borated Water Storage Tank Boron concentration limits for Specification 3.5.4;

10. Spent Fuel Pool Boron concentration limits for Specification 3.7.12;

11. RCS and Transfer Canal boron concentration limits for Specification 3.9.1; and

12. AXIAL POWER IMBALANCE protective limits and RCS Variable Low Pressure protective limits for Specification 2.1.1.

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

(1) DPC-NE-1002A, Reload Design Methodology II, Rev. 1, (SER dated October 1, 1985);

(2) NFS-1001A, Reload Design Methodology, Rev. 4, (SER dated July 29, 1981);

(3) DPC-NE-2003P-A, Oconee Nuclear Station Core Thermal Hydraulic Methodology Using VIPRE-01, (SER dated July 19, 1989);

(4) DPC-NE-1004P-A, Nuclear Design Methodology Using CASMO-3/SIMULATE-3P, (SER dated November 23, 1992);

(5) DPC-NE-2008P-A, Fuel Mechanical Reload Analysis Methodology Using TACO3, (SER dated April 3, 1995);

(6) BAW-10192-PA, BWNT LOCA - BWNT Loss of Coolant Accident Evaluation Model for Once-Through Steam Generator Plants, (SER dated February 18, 1997);

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

(7) DPC-NE-3000P-A, Thermal Hydraulic Transient Analysis Methodology, Rev. 2, (SER dated October 14, 1998);

(8) DPC-NE-2005P-A, Thermal Hydraulic Statistical Core Design Methodology, Rev. 1, (SER dated November 7, 1996); and

(9) DPC-NE-3005-PA, UFSAR Chapter 15 Transient Analysis Methodology, Rev. 1, (SER dated May 25, 1999).

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling System (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 Post Accident Monitoring (PAM) and Main Feeder Bus Monitor Panel (MFPMP) Report

When a report is required by Condition B or G of LCO 3.3.8, "Post Accident Monitoring (PAM) Instrumentation" or Condition D of LCO 3.3.23, "Main Feeder Bus Monitor Panel," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring (PAM only), the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.7 Tendon Surveillance Report

Any abnormal degradation of the containment structure detected during the tests required by the Pre-stressed Concrete Containment Tendon Surveillance Program shall be reported to the NRC within 30 days. The report shall include a description of the tendon condition, the condition of the concrete (especially at tendon anchorages), the inspection procedures, the tolerances on cracking, and the corrective action taken.

5.6 Reporting Requirements (continued)

5.6.8 Steam Generator Tube Inspection Report

The steam generator tube inspection report shall comply with the following:

a. The number of tubes plugged or repaired in each steam generator shall be reported to the NRC within 30 days following the completion of the plugging or repair procedure.

b. The results of the steam generator tube inservice inspection shall be reported to the NRC within 3 months following completion of the inspection. This report shall include:

   1. Number and extent of tubes inspected.

   2. Location and percent of wall-thickness penetration for each indication of a degraded tube.

   3. Identification of tubes plugged or repaired.

   4. Number of tubes repaired by rerolling and number of indications detected in the new roll area of the repaired tubes.

c. Results of steam generator tube inspections which fall into Category C-3 and require notification to the NRC shall be reported prior to resumption of plant operation. The written report shall provide the results of investigations conducted to determine cause of the tube degradation and corrective measures taken to prevent recurrence.

d. The designation of affected and unaffected areas will be reported to the NRC when they are determined.