

## **ATTACHMENT 3**

**ITS and Bases Pages for the Quad Cities Nuclear Power Station**

## TABLE OF CONTENTS

1.0	USE AND APPLICATION	
1.1	Definitions . . . . .	1.1-1
1.2	Logical Connectors . . . . .	1.2-1
1.3	Completion Times . . . . .	1.3-1
1.4	Frequency . . . . .	1.4-1
2.0	SAFETY LIMITS (SLs)	
2.1	SLs . . . . .	2.0-1
2.2	SL Violations . . . . .	2.0-1
3.0	LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY . . .	3.0-1
3.0	SURVEILLANCE REQUIREMENT (SR) APPLICABILITY . . . . .	3.0-4
3.1	REACTIVITY CONTROL SYSTEMS	
3.1.1	SHUTDOWN MARGIN (SDM) . . . . .	3.1.1-1
3.1.2	Reactivity Anomalies . . . . .	3.1.2-1
3.1.3	Control Rod OPERABILITY . . . . .	3.1.3-1
3.1.4	Control Rod Scram Times . . . . .	3.1.4-1
3.1.5	Control Rod Scram Accumulators . . . . .	3.1.5-1
3.1.6	Rod Pattern Control . . . . .	3.1.6-1
3.1.7	Standby Liquid Control (SLC) System . . . . .	3.1.7-1
3.1.8	Scram Discharge Volume (SDV) Vent and Drain Valves . .	3.1.8-1
3.2	POWER DISTRIBUTION LIMITS	
3.2.1	AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR) . .	3.2.1-1
3.2.2	MINIMUM CRITICAL POWER RATIO (MCPR) . . . . .	3.2.2-1
3.2.3	LINEAR HEAT GENERATION RATE (LHGR) . . . . .	3.2.3-1
3.2.4	Average Power Range Monitor (APRM) Gain and Setpoint .	3.2.4-1
3.3	INSTRUMENTATION	
3.3.1.1	Reactor Protection System (RPS) Instrumentation . . . .	3.3.1.1-1
3.3.1.2	Source Range Monitor (SRM) Instrumentation . . . . .	3.3.1.2-1
3.3.2.1	Control Rod Block Instrumentation . . . . .	3.3.2.1-1
3.3.2.2	Feedwater System and Main Turbine High Water Level Trip Instrumentation . . . . .	3.3.2.2-1
3.3.3.1	Post Accident Monitoring (PAM) Instrumentation . . . .	3.3.3.1-1
3.3.4.1	Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation . . . . .	3.3.4.1-1
3.3.5.1	Emergency Core Cooling System (ECCS) Instrumentation .	3.3.5.1-1
3.3.5.2	Reactor Core Isolation Cooling (RCIC) System Instrumentation . . . . .	3.3.5.2-1
3.3.6.1	Primary Containment Isolation Instrumentation . . . . .	3.3.6.1-1
3.3.6.2	Secondary Containment Isolation Instrumentation . . . .	3.3.6.2-1
3.3.6.3	Relief Valve Instrumentation . . . . .	3.3.6.3-1
3.3.7.1	Control Room Emergency Ventilation (CREV) System Instrumentation . . . . .	3.3.7.1-1
3.3.7.2	Mechanical Vacuum Pump Trip Instrumentation . . . . .	3.3.7.2-1

(continued)

## TABLE OF CONTENTS

3.3	INSTRUMENTATION (continued)	
3.3.8.1	Loss of Power (LOP) Instrumentation . . . . .	3.3.8.1-1
3.3.8.2	Reactor Protection System (RPS) Electric Power Monitoring . . . . .	3.3.8.2-1
3.4	REACTOR COOLANT SYSTEM (RCS)	
3.4.1	Recirculation Loops Operating . . . . .	3.4.1-1
3.4.2	Jet Pumps . . . . .	3.4.2-1
3.4.3	Safety and Relief Valves . . . . .	3.4.3-1
3.4.4	RCS Operational LEAKAGE . . . . .	3.4.4-1
3.4.5	RCS Leakage Detection Instrumentation . . . . .	3.4.5-1
3.4.6	RCS Specific Activity . . . . .	3.4.6-1
3.4.7	Residual Heat Removal (RHR) Shutdown Cooling System—Hot Shutdown . . . . .	3.4.7-1
3.4.8	Residual Heat Removal (RHR) Shutdown Cooling System—Cold Shutdown . . . . .	3.4.8-1
3.4.9	RCS Pressure and Temperature (P/T) Limits . . . . .	3.4.9-1
3.4.10	Reactor Steam Dome Pressure . . . . .	3.4.10-1
3.5	EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM	
3.5.1	ECCS—Operating . . . . .	3.5.1-1
3.5.2	ECCS—Shutdown . . . . .	3.5.2-1
3.5.3	RCIC System . . . . .	3.5.3-1
3.6	CONTAINMENT SYSTEMS	
3.6.1.1	Primary Containment . . . . .	3.6.1.1-1
3.6.1.2	Primary Containment Air Lock . . . . .	3.6.1.2-1
3.6.1.3	Primary Containment Isolation Valves (PCIVs) . . . . .	3.6.1.3-1
3.6.1.4	Drywell Pressure. . . . .	3.6.1.4-1
3.6.1.5	Drywell Air Temperature . . . . .	3.6.1.5-1
3.6.1.6	Low Set Relief Valves . . . . .	3.6.1.6-1
3.6.1.7	Reactor Building-to-Suppression Chamber Vacuum Breakers . . . . .	3.6.1.7-1
3.6.1.8	Suppression Chamber-to-Drywell Vacuum Breakers . . . . .	3.6.1.8-1
3.6.2.1	Suppression Pool Average Temperature . . . . .	3.6.2.1-1
3.6.2.2	Suppression Pool Water Level . . . . .	3.6.2.2-1
3.6.2.3	Residual Heat Removal (RHR) Suppression Pool Cooling . . . . .	3.6.2.3-1
3.6.2.4	Residual Heat Removal (RHR) Suppression Pool Spray . . . . .	3.6.2.4-1
3.6.2.5	Drywell-to-Suppression Chamber Differential Pressure . . . . .	3.6.2.5-1
3.6.3.1	Primary Containment Oxygen Concentration . . . . .	3.6.3.1-1
3.6.4.1	Secondary Containment . . . . .	3.6.4.1-1
3.6.4.2	Secondary Containment Isolation Valves (SCIVs) . . . . .	3.6.4.2-1
3.6.4.3	Standby Gas Treatment (SGT) System . . . . .	3.6.4.3-1

(continued)

## TABLE OF CONTENTS (continued)

3.7	PLANT SYSTEMS	
3.7.1	Residual Heat Removal Service Water (RHRSW) System . . .	3.7.1-1
3.7.2	Diesel Generator Cooling Water (DGCW) System . . . . .	3.7.2-1
3.7.3	Ultimate Heat Sink (UHS) . . . . .	3.7.3-1
3.7.4	Control Room Emergency Ventilation (CREV) System . . .	3.7.4-1
3.7.5	Control Room Emergency Ventilation Air Conditioning (AC) System . . . . .	3.7.5-1
3.7.6	Main Condenser Offgas . . . . .	3.7.6-1
3.7.7	Main Turbine Bypass System . . . . .	3.7.7-1
3.7.8	Spent Fuel Storage Pool Water Level . . . . .	3.7.8-1
3.7.9	Safe Shutdown Makeup Pump (SSMP) System . . . . .	3.7.9-1
3.8	ELECTRICAL POWER SYSTEMS	
3.8.1	AC Sources—Operating . . . . .	3.8.1-1
3.8.2	AC Sources—Shutdown . . . . .	3.8.2-1
3.8.3	Diesel Fuel Oil Properties and Starting Air . . . . .	3.8.3-1
3.8.4	DC Sources—Operating . . . . .	3.8.4-1
3.8.5	DC Sources—Shutdown . . . . .	3.8.5-1
3.8.6	Battery Cell Parameters . . . . .	3.8.6-1
3.8.7	Distribution Systems—Operating . . . . .	3.8.7-1
3.8.8	Distribution Systems—Shutdown . . . . .	3.8.8-1
3.9	REFUELING OPERATIONS	
3.9.1	Refueling Equipment Interlocks . . . . .	3.9.1-1
3.9.2	Refuel Position One-Rod-Out Interlock . . . . .	3.9.2-1
3.9.3	Control Rod Position . . . . .	3.9.3-1
3.9.4	Control Rod Position Indication . . . . .	3.9.4-1
3.9.5	Control Rod OPERABILITY—Refueling . . . . .	3.9.5-1
3.9.6	Reactor Pressure Vessel (RPV) Water Level—Irradiated Fuel . . . . .	3.9.6-1
3.9.7	Reactor Pressure Vessel (RPV) Water Level—New Fuel or Control Rods . . . . .	3.9.7-1
3.9.8	Residual Heat Removal (RHR)—High Water Level . . . . .	3.9.8-1
3.9.9	Residual Heat Removal (RHR)—Low Water Level . . . . .	3.9.9-1
3.10	SPECIAL OPERATIONS	
3.10.1	Reactor Mode Switch Interlock Testing . . . . .	3.10.1-1
3.10.2	Single Control Rod Withdrawal—Hot Shutdown . . . . .	3.10.2-1
3.10.3	Single Control Rod Withdrawal—Cold Shutdown . . . . .	3.10.3-1
3.10.4	Single Control Rod Drive (CRD) Removal—Refueling . . . . .	3.10.4-1
3.10.5	Multiple Control Rod Withdrawal—Refueling . . . . .	3.10.5-1
3.10.6	Control Rod Testing—Operating . . . . .	3.10.6-1
3.10.7	SHUTDOWN MARGIN (SDM) Test—Refueling . . . . .	3.10.7-1

(continued)



TABLE OF CONTENTS (continued)

---

4.0	DESIGN FEATURES	
4.1	Site Location . . . . .	4.0-1
4.2	Reactor Core . . . . .	4.0-1
4.3	Fuel Storage . . . . .	4.0-2
5.0	ADMINISTRATIVE CONTROLS	
5.1	Responsibility . . . . .	5.1-1
5.2	Organization . . . . .	5.2-1
5.3	Unit Staff Qualifications . . . . .	5.3-1
5.4	Procedures . . . . .	5.4-1
5.5	Programs and Manuals . . . . .	5.5-1
5.6	Reporting Requirements . . . . .	5.6-1
5.7	High Radiation Area . . . . .	5.7-1

---

## 1.0 USE AND APPLICATION

### 1.1 Definitions

---

-----NOTE-----

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

---

<u>Term</u>	<u>Definition</u>
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the LHGRs for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.
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

---

(continued)

## 1.1 Definitions

---

CHANNEL CHECK (continued)	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 of all devices in the channel required for channel OPERABILITY. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps.
CORE ALTERATION	<p>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. The following exceptions are not considered to be CORE ALTERATIONS:</p> <ul style="list-style-type: none"><li>a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and</li><li>b. Control rod movement, provided there are no fuel assemblies in the associated core cell.</li></ul> <p>Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.</p>
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

---

(continued)

## 1.1 Definitions

---

### DOSE EQUIVALENT I-131 (continued)

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;" Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977; or ICRP 30, Supplement to Part 1, pages 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity."

### FUEL DESIGN LIMITING RATIO FOR CENTERLINE MELT (FDLRC)

The FDLRC shall be 1.2 times the LHGR existing at a given location divided by the product of the transient LHGR limit and the fraction of RTP.

### LEAKAGE

LEAKAGE shall be:

#### a. Identified LEAKAGE

1. LEAKAGE into the drywell, such as that from pump seals or valve packing, that is captured and conducted to a sump or collecting tank; or
2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE;

#### b. Unidentified LEAKAGE

All LEAKAGE into the drywell that is not identified LEAKAGE;

#### c. Total LEAKAGE

Sum of the identified and unidentified LEAKAGE; and

#### d. Pressure Boundary LEAKAGE

LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.

---

(continued)

1.1 Definitions (continued)

---

LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.
LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for OPERABILITY of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.
MAXIMUM FRACTION OF LIMITING POWER DENSITY (MFLPD)	The MFLPD shall be the largest value of the fraction of limiting power density (FLPD) in the core. The FLPD shall be the LHGR existing at a given location divided by the specified LHGR limit for that bundle type.
MINIMUM CRITICAL POWER RATIO (MCPR)	The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.
MODE	A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE - OPERABILITY	A system, subsystem, division, 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

(continued)

---

## 1.1 Definitions

---

OPERABLE -- OPERABILITY (continued)	are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2511 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from the opening of the sensor contact until the opening of the trip actuator. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
SHUTDOWN MARGIN (SDM)	<p>SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical assuming that:</p> <ol style="list-style-type: none"><li>The reactor is xenon free;</li><li>The moderator temperature is 68°F; and</li><li>All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn.</li></ol> <p>With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.</p>
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

---

(continued)

## 1.1 Definitions

---

STAGGERED TEST BASIS (continued)	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.
TURBINE BYPASS SYSTEM RESPONSE TIME	The TURBINE BYPASS SYSTEM RESPONSE TIME shall be that time interval from when the turbine bypass control unit generates a turbine bypass valve flow signal until the turbine bypass valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

---

Table 1.1-1 (page 1 of 1)  
MODES

MODE	TITLE	REACTOR MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	Run	NA
2	Startup	Refuel <sup>(a)</sup> or Startup/Hot Standby	NA
3	Hot Shutdown <sup>(a)</sup>	Shutdown	> 212
4	Cold Shutdown <sup>(a)</sup>	Shutdown	≤ 212
5	Refueling <sup>(b)</sup>	Shutdown or Refuel	NA

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

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



## 1.0 USE AND APPLICATION

### 1.2 Logical Connectors

---

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

---

(continued)

## 1.2 Logical Connectors

EXAMPLES  
(continued)

### EXAMPLE 1.2-1

#### ACTIONS

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

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

(continued)

## 1.2 Logical Connectors

### EXAMPLES (continued)

#### EXAMPLE 1.2-2

##### ACTIONS

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

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

## 1.0 USE AND APPLICATION

### 1.3 Completion Times

---

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
---------	---

---

BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
------------	--

---

DESCRIPTION	<p>The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the 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.</p> <p>If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition.</p> <p>Once a Condition has been entered, subsequent divisions, 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.</p>
-------------	---

---

(continued)

### 1.3 Completion Times

---

DESCRIPTION  
(continued)

However, when a subsequent division, 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 extension does not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each division, 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 Condition A and B in Example 1.3-3 may not be extended.

---

EXAMPLES

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

(continued)

---

### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-1

##### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	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 12 hours AND in MODE 4 within 36 hours. A total of 12 hours is allowed for reaching MODE 3 and a total of 36 hours (not 48 hours) is allowed for reaching MODE 4 from the time that Condition B was entered. If MODE 3 is reached within 6 hours, the time allowed for reaching MODE 4 is the next 30 hours because the total time allowed for reaching MODE 4 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 4 is the next 36 hours.

(continued)

### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-2

##### ACTIONS

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

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

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

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

(continued)

### 1.3 Completion Times

---

#### EXAMPLES

#### EXAMPLE 1.3-2 (continued)

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

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

(continued)

---



1.3 Completion Times

EXAMPLES  
(continued)

EXAMPLE 1.3-3

ACTIONS

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

(continued)

### 1.3 Completion Times

---

#### EXAMPLES

#### EXAMPLE 1.3-3 (continued)

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

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

(continued)

---

### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-4

##### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 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.

(continued)

1.3 Completion Times

EXAMPLE  
(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.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 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.

(continued)

### 1.3 Completion Times

#### EXAMPLES

#### EXAMPLE 1.3-5 (continued)

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

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

#### EXAMPLE 1.3-6

##### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x.	Once per 8 hours
	<u>OR</u> A.2 Reduce THERMAL POWER to $\leq$ 50% RTP.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

(continued)

### 1.3 Completion Times

---

#### EXAMPLES

#### EXAMPLE 1.3-6 (continued)

Entry into Condition A offers a choice between Required Action A.1 or A.2. Required Action A.1 has a "once per" Completion Time, which qualifies for the 25% extension, per SR 3.0.2, to each performance after the initial performance. 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 completed 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.

(continued)

---

### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-7

##### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u> A.2 Restore subsystem to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

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

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

(continued)

### 1.3 Completion Times

---

#### EXAMPLES

#### EXAMPLE 1.3-7 (continued)

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	<p>Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated Limiting Condition for Operation (LCO). An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.</p> <p>The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR, as well as certain Notes in the Surveillance column that modify performance requirements.</p> <p>Sometimes special situations dictate when the requirements of a Surveillance are to be met. They are "otherwise stated" conditions allowed by SR 3.0.1. They may be stated as clarifying Notes in the Surveillance, as part of the Surveillance, or both. Example 1.4-4 discusses these special situations.</p> <p>Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.</p> <p>The use of "met" or "performed" in these instances conveys specific meanings. A Surveillance is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance, even without a Surveillance specifically being "performed," constitutes a Surveillance not "met." "Performance" refers only to the requirement to specifically determine the ability to meet the acceptance criteria. SR 3.0.4 restrictions would not apply if both the following conditions are satisfied:</p>
-------------	---

---

(continued)

## 1.4 Frequency

DESCRIPTION (continued)	<p>a. The Surveillance is not required to be performed; and</p> <p>b. The Surveillance is not required to be met or, even if required to be met, is not known to be failed.</p>
----------------------------	---

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

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 interval specified in the 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 Examples 1.4-3 and 1.4-4), 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

(continued)

## 1.4 Frequency

### EXAMPLES

#### EXAMPLE 1.4-1 (continued)

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  <u>AND</u>  24 hours thereafter

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

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the extension allowed by SR 3.0.2.

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

(continued)

## 1.4 Frequency

EXAMPLES  
(continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

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

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

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

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

(continued)

1.4 Frequency

EXAMPLES  
(continued)

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

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

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

## 2.0 SAFETY LIMITS (SLs)

---

### 2.1 SLs

#### 2.1.1 Reactor Core SLs

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

THERMAL POWER shall be  $\leq 25\%$  RTP.

2.1.1.2 With the reactor steam dome pressure  $\geq 785$  psig and core flow  $\geq 10\%$  rated core flow:

MCPR shall be  $\geq 1.11$  for two recirculation loop operation or  $\geq 1.12$  for single recirculation loop operation.

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

#### 2.1.2 Reactor Coolant System Pressure SL

Reactor steam dome pressure shall be  $\leq 1345$  psig.

---

### 2.2 SL Violations

With any SL violation, the following actions shall be completed within 2 hours:

2.2.1 Restore compliance with all SLs; and

2.2.2 Insert all insertable control rods.

---

### 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 13 hours; and
- b. MODE 4 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, and 3.

---

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.

(continued)

---

### 3.0 LC0 APPLICABILITY

---

LC0 3.0.4  
(continued)

Exceptions to this Specification are stated in the individual Specifications.

LC0 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, and 3.

---

LC0 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 LC0 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

---

LC0 3.0.6

When a supported system LC0 is not met solely due to a support system LC0 not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LC0 ACTIONS are required to be entered. This is an exception to LC0 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.11, "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 LC0 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 LC0 3.0.2.

---

LC0 3.0.7

Special Operations LC0s in Section 3.10 allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Special Operations LC0s is optional. When a Special Operations LC0 is desired to be met but is not met, the ACTIONS of the Special Operations

(continued)

---



### 3.0 LCO APPLICABILITY

---

LCO 3.0.7 (continued)	LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.
--------------------------	--

---

LCO 3.0.8	LCOs, including associated ACTIONS, shall apply to each unit individually, unless otherwise indicated. Whenever the LCO refers to a system or component that is shared by both units, the ACTIONS will apply to both units simultaneously.
-----------	--

---

### 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.

---

(continued)

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, and 3.

---

SR 3.0.5            SRs shall apply to each unit individually, unless otherwise indicated.

---

---

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.1 SHUTDOWN MARGIN (SDM)

LC0 3.1.1 SDM shall be:

- a.  $\geq 0.38\% \Delta k/k$ , with the highest worth control rod analytically determined; or
- b.  $\geq 0.28\% \Delta k/k$ , with the highest worth control rod determined by test.

APPLICABILITY: MODES 1, 2, 3, 4, and 5.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limits in MODE 1 or 2.	A.1 Restore SDM to within limits.	6 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
C. SDM not within limits in MODE 3.	C.1 Initiate action to fully insert all insertable control rods.	Immediately
D. SDM not within limits in MODE 4.	D.1 Initiate action to fully insert all insertable control rods.  <u>AND</u>	Immediately  (continued)

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.2 Initiate action to restore secondary containment to OPERABLE status.	1 hour
	<u>AND</u>	
	D.3 Initiate action to restore one standby gas treatment (SGT) subsystem to OPERABLE status.	1 hour
	<u>AND</u>	
	D.4 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	1 hour
E. SDM not within limits in MODE 5.	E.1 Suspend CORE ALTERATIONS except for control rod insertion and fuel assembly removal.	Immediately
	<u>AND</u>	
	E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>AND</u>	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. (continued)	E.3 Initiate action to restore secondary containment to OPERABLE status.	1 hour
	<u>AND</u>	
	E.4 Initiate action to restore one SGT subsystem to OPERABLE status.	1 hour
	<u>AND</u>	
	E.5 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.1.1 Verify SDM is:</p> <ul style="list-style-type: none"> <li>a. <math>\geq 0.38\% \Delta k/k</math> with the highest worth control rod analytically determined; or</li> <li>b. <math>\geq 0.28\% \Delta k/k</math> with the highest worth control rod determined by test.</li> </ul>	<p>Prior to each in vessel fuel movement during fuel loading sequence</p> <p><u>AND</u></p> <p>Once within 4 hours after criticality following fuel movement within the reactor pressure vessel or control rod replacement</p>

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.2 Reactivity Anomalies

LC0 3.1.2 The reactivity difference between the monitored core  $k_{eff}$  and the predicted core  $k_{eff}$  shall be within  $\pm 1\% \Delta k/k$ .

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Core reactivity difference not within limit.	A.1 Restore core reactivity difference to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.2.1      Verify core reactivity difference between the monitored core <math>k_{eff}</math> and the predicted core <math>k_{eff}</math> is within <math>\pm 1\% \Delta k/k</math>.</p>	<p>Once within 24 hours after reaching equilibrium conditions following startup after fuel movement within the reactor pressure vessel or control rod replacement</p> <p><u>AND</u></p> <p>1000 MWD/T thereafter during operations in MODE 1</p>

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.3 Control Rod OPERABILITY

LC0 3.1.3 Each control rod shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each control rod.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One withdrawn control rod stuck.	-----NOTE----- Rod worth minimizer (RWM) may be bypassed as allowed by LC0 3.3.2.1, "Control Rod Block Instrumentation," if required, to allow continued operation. -----	
	A.1 Verify stuck control rod separation criteria are met.	Immediately
	<u>AND</u>	
	A.2 Disarm the associated control rod drive (CRD).  <u>AND</u>	2 hours
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3 Perform SR 3.1.3.2 and SR 3.1.3.3 for each withdrawn OPERABLE control rod.	24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM
	<u>AND</u> A.4 Perform SR 3.1.1.1.	72 hours
B. Two or more withdrawn control rods stuck.	B.1 Be in MODE 3.	12 hours
C. One or more control rods inoperable for reasons other than Condition A or B.	C.1 -----NOTE----- RWM may be bypassed as allowed by LCO 3.3.2.1, if required, to allow insertion of inoperable control rod and continued operation. ----- Fully insert inoperable control rod.	3 hours
	<u>AND</u> C.2 Disarm the associated CRD.	4 hours

(continued)

ACTIONS

ACTIONS		
CONDITION	REQUIRED ACTION	COMPLETION TIME
D. -----NOTE----- Not applicable when THERMAL POWER > 10% RTP. -----	D.1 Restore compliance with analyzed rod position sequence.	4 hours
	<u>OR</u>	
Two or more inoperable control rods not in compliance with analyzed rod position sequence and not separated by two or more OPERABLE control rods.	D.2 Restore control rod to OPERABLE status.	4 hours
E. Required Action and associated Completion Time of Condition A, C, or D not met.  <u>OR</u>  Nine or more control rods inoperable.	E.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	24 hours
SR 3.1.3.2	<p>-----NOTE-----            Not required to be performed until 7 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of RWM.            -----</p> <p>Insert each fully withdrawn control rod at least one notch.</p>	7 days
SR 3.1.3.3	<p>-----NOTE-----            Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM.            -----</p> <p>Insert each partially withdrawn control rod at least one notch.</p>	31 days
SR 3.1.3.4	Verify each control rod scram time from fully withdrawn to 90% insertion is $\leq 7$ seconds.	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.3.5    Verify each control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position  <u>AND</u>  Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.4 Control Rod Scram Times

- LCO 3.1.4
- a. No more than 12 OPERABLE control rods shall be "slow," in accordance with Table 3.1.4-1; and
  - b. No more than 2 OPERABLE control rods that are "slow" shall occupy adjacent locations.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

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

#### SURVEILLANCE REQUIREMENTS

-----NOTE-----  
During single control rod scram time Surveillances, the control rod drive (CRD) pumps shall be isolated from the associated scram accumulator.  
-----

SURVEILLANCE	FREQUENCY
SR 3.1.4.1 Verify each control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure $\geq$ 800 psig.	Prior to exceeding 40% RTP after each reactor shutdown $\geq$ 120 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.4.2     Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure $\geq$ 800 psig.	120 days cumulative operation in MODE 1
SR 3.1.4.3     Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4     Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure $\geq$ 800 psig.	Prior to exceeding 40% RTP after fuel movement within the affected core cell  <u>AND</u>  Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time



Table 3.1.4-1 (page 1 of 1)  
Control Rod Scram Times

- NOTES-----
1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
  2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to 90% insertion. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."
- 

PERCENT INSERTION	SCRAM TIMES(a)(b) (seconds) when REACTOR STEAM DOME PRESSURE $\geq$ 800 psig
5	0.36
20	0.84
50	1.86
90	3.25

- (a) Maximum scram time from fully withdrawn position based on de-energization of scram pilot valve solenoids at time zero.
- (b) Scram times as a function of reactor steam dome pressure when < 800 psig are within established limits.

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.5 Control Rod Scram Accumulators

LC0 3.1.5 Each control rod scram accumulator shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each control rod scram accumulator.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One control rod scram accumulator inoperable with reactor steam dome pressure $\geq 900$ psig.	A.1 -----NOTE----- Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance. -----  Declare the associated control rod scram time "slow."	8 hours
	<u>OR</u>	
	A.2 Declare the associated control rod inoperable.	8 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two or more control rod scram accumulators inoperable with reactor steam dome pressure $\geq$ 900 psig.	B.1 Restore charging water header pressure to $\geq$ 940 psig.	20 minutes from discovery of Condition B concurrent with charging water header pressure $<$ 940 psig
	<u>AND</u>	
	B.2.1 -----NOTE----- Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance. ----- Declare the associated control rod scram time "slow."	1 hour
	<u>OR</u> B.2.2 Declare the associated control rod inoperable.	1 hour

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more control rod scram accumulators inoperable with reactor steam dome pressure < 900 psig.	C.1 Verify all control rods associated with inoperable accumulators are fully inserted.	Immediately upon discovery of charging water header pressure < 940 psig
	<u>AND</u> C.2 Declare the associated control rod inoperable.	1 hour
D. Required Action B.1 or C.1 and associated Completion Time not met.	D.1 -----NOTE----- Not applicable if all inoperable control rod scram accumulators are associated with fully inserted control rods. -----  Place the reactor mode switch in the shutdown position.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.5.1 Verify each control rod scram accumulator pressure is $\geq$ 940 psig.	7 days

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.6 Rod Pattern Control

LC0 3.1.6 OPERABLE control rods shall comply with the requirements of the analyzed rod position sequence.

APPLICABILITY: MODES 1 and 2 with THERMAL POWER  $\leq$  10% RTP.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more OPERABLE control rods not in compliance with the analyzed rod position sequence.	A.1 -----NOTE----- Rod worth minimizer (RWM) may be bypassed as allowed by LC0 3.3.2.1, "Control Rod Block Instrumentation." -----	8 hours
	Move associated control rod(s) to correct position.	
	<u>OR</u> A.2 Declare associated control rod(s) inoperable.	8 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Nine or more OPERABLE control rods not in compliance with the analyzed rod position sequence.	B.1 -----NOTE----- Rod worth minimizer (RWM) may be bypassed as allowed by LCO 3.3.2.1. ----- Suspend withdrawal of control rods.	Immediately
	AND B.2 Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.6.1 Verify all OPERABLE control rods comply with the analyzed rod position sequence.	24 hours

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.7 Standby Liquid Control (SLC) System

LC0 3.1.7 Two SLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SLC subsystem inoperable.	A.1 Restore SLC subsystem to OPERABLE status.	7 days
B. Two SLC subsystems inoperable.	B.1 Restore one SLC subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.7.1    Verify available volume of sodium pentaborate solution is within the limits of Figure 3.1.7-1.	24 hours
SR 3.1.7.2    Verify temperature of sodium pentaborate solution is within the limits of Figure 3.1.7-2.	24 hours
SR 3.1.7.3    Verify temperature of pump suction piping is $\geq 83^{\circ}\text{F}$ .	24 hours
SR 3.1.7.4    Verify continuity of explosive charge.	31 days
SR 3.1.7.5    Verify the concentration of sodium pentaborate in solution is within the limits of Figure 3.1.7-1.	<p>31 days</p> <p><u>AND</u></p> <p>Once within 24 hours after water or sodium pentaborate is added to solution</p> <p><u>AND</u></p> <p>Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-2</p>

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.7.6    Verify each SLC subsystem manual valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position.	31 days
SR 3.1.7.7    Verify each pump develops a flow rate $\geq 40$ gpm at a discharge pressure $\geq 1275$ psig.	In accordance with the Inservice Testing Program
SR 3.1.7.8    Verify flow through one SLC subsystem from pump into reactor pressure vessel.	24 months on a STAGGERED TEST BASIS
SR 3.1.7.9    Verify all heat traced piping between storage tank and pump suction is unblocked.	24 months  <u>AND</u>  Once within 24 hours after piping temperature is restored within the limits of Figure 3.1.7-2

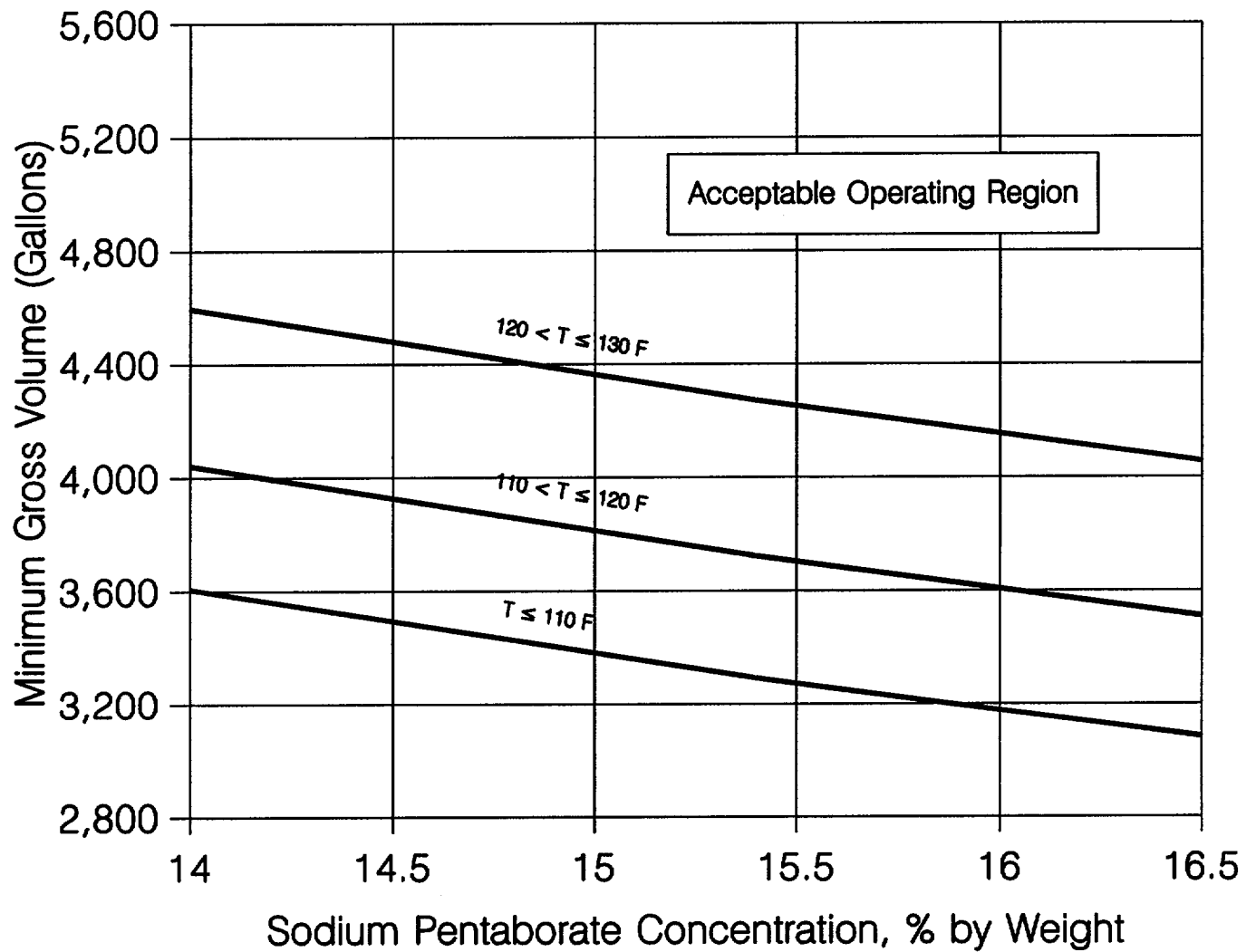


Figure 3.1.7-1 (page 1 of 1)  
Sodium Pentaborate Volume Requirements

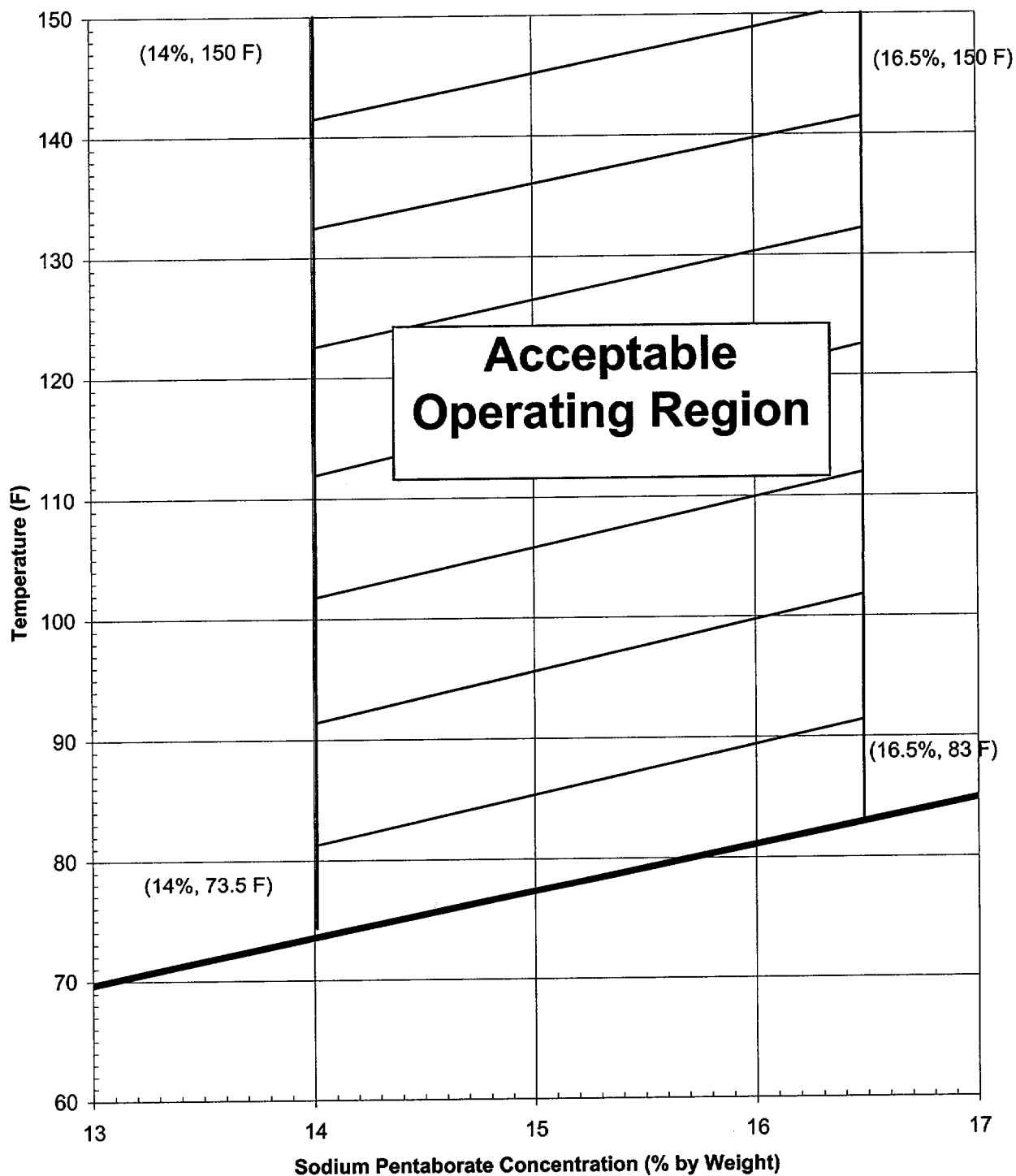


Figure 3.1.7-2 (page 1 of 1)  
Sodium Pentaborate Temperature Requirements

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.8 Scram Discharge Volume (SDV) Vent and Drain Valves

LC0 3.1.8 Each SDV vent and drain valve shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

- NOTES-----
1. Separate Condition entry is allowed for each SDV vent and drain line.
  2. An isolated line may be unisolated under administrative control to allow draining and venting of the SDV.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SDV vent or drain lines with one valve inoperable.	A.1 Isolate the associated line.	7 days
B. One or more SDV vent or drain lines with both valves inoperable.	B.1 Isolate the associated line.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.8.1 -----NOTE-----            Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2.            -----            Verify each SDV vent and drain valve is open.</p>	31 days
<p>SR 3.1.8.2 Cycle each SDV vent and drain valve to the fully closed and fully open position.</p>	92 days
<p>SR 3.1.8.3 Verify each SDV vent and drain valve:</p> <ul style="list-style-type: none"> <li>a. Closes in <math>\leq 30</math> seconds after receipt of an actual or simulated scram signal; and</li> <li>b. Opens when the actual or simulated scram signal is reset.</li> </ul>	24 months

## 3.2 POWER DISTRIBUTION LIMITS

### 3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

LC0 3.2.1 All APLHGRs shall be less than or equal to the limits specified in the COLR.

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

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any APLHGR not within limits.	A.1 Restore APLHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.1.1 Verify all APLHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after $\geq$ 25% RTP  <u>AND</u> 24 hours thereafter

## 3.2 POWER DISTRIBUTION LIMITS

### 3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)

LC0 3.2.2 All MCPRs shall be greater than or equal to the MCPR operating limits specified in the COLR.

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

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any MCPR not within limits.	A.1 Restore MCPR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.2.1 Verify all MCPRs are greater than or equal to the limits specified in the COLR.	Once within 12 hours after $\geq$ 25% RTP  <u>AND</u> 24 hours thereafter

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.2.2 Determine the MCPR limits.	Once within 72 hours after each completion of SR 3.1.4.1  <u>AND</u>  Once within 72 hours after each completion of SR 3.1.4.2  <u>AND</u>  Once within 72 hours after each completion of SR 3.1.4.4



## 3.2 POWER DISTRIBUTION LIMITS

### 3.2.3 LINEAR HEAT GENERATION RATE (LHGR)

LC0 3.2.3 All LHGRs shall be less than or equal to the limits specified in the COLR.

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

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any LHGR not within limits.	A.1 Restore LHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

#### SURVEILLANCE REQUIREMENTS

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

### 3.2 POWER DISTRIBUTION LIMITS

#### 3.2.4 Average Power Range Monitor (APRM) Gain and Setpoint

- LCO 3.2.4
- a. FDLRC and the ratio of MFLPD to Fraction of RTP (F RTP) shall be less than or equal to 1.0; or
  - b. Each required APRM Flow Biased Neutron Flux-High Function Allowable Value shall be modified by the lesser of 1/FDLRC or F RTP/MFLPD; or
  - c. Each required APRM gain shall be adjusted such that the APRM readings are  $\geq 100\%$  times the higher of F RTP times FDLRC or of MFLPD.

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

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	6 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to $< 25\%$ RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.4.1 -----NOTE-----            Not required to be met if SR 3.2.4.2 is satisfied for LCO 3.2.4.b or LCO 3.2.4.c requirements.            -----</p> <p>Verify FDLRC and the ratio of MFLPD to F RTP are within limits.</p>	<p>Once within 12 hours after ≥ 25% RTP</p> <p><u>AND</u></p> <p>24 hours thereafter</p>
<p>SR 3.2.4.2 -----NOTE-----            Not required to be met if SR 3.2.4.1 is satisfied for LCO 3.2.4.a requirements.            -----</p> <p>Verify each required:</p> <p>a. APRM Flow Biased Neutron Flux-High Function Allowable Value is modified by less than or equal to the lesser of 1/FDLRC or F RTP/MFLPD; or</p> <p>b. APRM gain is adjusted such that the APRM reading is ≥ 100% times the higher of F RTP times FDLRC or of MFLPD.</p>	<p>12 hours</p>

### 3.3 INSTRUMENTATION

#### 3.3.1.1 Reactor Protection System (RPS) Instrumentation

LC0 3.3.1.1 The RPS instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.1-1.

#### ACTIONS

- NOTES-----
1. Separate Condition entry is allowed for each channel.
  2. When Functions 2.b and 2.c channels are inoperable due to APRM indication not within limits, entry into associated Conditions and Required Actions may be delayed for up to 2 hours if the APRM is indicating a lower power value than the calculated power, and for up to 12 hours if the APRM is indicating a higher power value than calculated power.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours
	<u>OR</u> A.2 Place associated trip system in trip.	12 hours
B. One or more Functions with one or more required channels inoperable in both trip systems.	B.1 Place channel in one trip system in trip.	6 hours
	<u>OR</u> B.2 Place one trip system in trip.	6 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with RPS trip capability not maintained.	C.1 Restore RPS trip capability.	1 hour
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Enter the Condition referenced in Table 3.3.1.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	E.1 Reduce THERMAL POWER to < 45% RTP.	4 hours
F. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	F.1 Be in MODE 2.	8 hours
G. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	G.1 Be in MODE 3.	12 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	H.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

# SURVEILLANCE REQUIREMENTS

- NOTES-----
1. Refer to Table 3.3.1.1-1 to determine which SRs apply for each RPS Function.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains RPS trip capability.
- 

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.1.2	<p>-----NOTE-----</p> <p>Not required to be performed until 12 hours after THERMAL POWER <math>\geq</math> 25% RTP.</p> <p>-----</p> <p>Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is <math>\leq</math> 2% RTP plus any gain adjustment required by LCO 3.2.4, "Average Power Range Monitor (APRM) Gain and Setpoint" while operating at <math>\geq</math> 25% RTP.</p>	7 days
SR 3.3.1.1.3	Adjust the channel to conform to a calibrated flow signal.	7 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.4	<p>-----NOTE-----            Not required to be performed when            entering MODE 2 from MODE 1 until            24 hours after entering MODE 2.            -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	7 days
SR 3.3.1.1.5	Perform a functional test of each RPS automatic scram contactor.	7 days
SR 3.3.1.1.6	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to fully withdrawing SRMs
SR 3.3.1.1.7	<p>-----NOTE-----            Only required to be met during entry into            MODE 2 from MODE 1.            -----</p> <p>Verify the IRM and APRM channels overlap.</p>	7 days
SR 3.3.1.1.8	Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.1.1.9	Calibrate the local power range monitors.	2000 effective full power hours
SR 3.3.1.1.10	Perform CHANNEL FUNCTIONAL TEST.	92 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.1.1.11 Calibrate the trip units.	92 days
SR 3.3.1.1.12 Perform CHANNEL CALIBRATION.	92 days
SR 3.3.1.1.13 Verify Turbine Stop Valve-Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure-Low Functions are not bypassed when THERMAL POWER is $\geq 45\%$ RTP.	92 days
SR 3.3.1.1.14 -----NOTES----- 1. Neutron detectors are excluded.  2. For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 24 hours after entering MODE 2.  3. For Function 2.b, not required for the flow portion of the channels. -----  Perform CHANNEL CALIBRATION.	184 days
SR 3.3.1.1.15 Perform CHANNEL FUNCTIONAL TEST.	24 months

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.1.16 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Neutron detectors are excluded.</li> <li>2. For Function 1.a, not required to be performed when entering MODE 2 from MODE 1 until 24 hours after entering MODE 2.</li> </ol> <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>24 months</p>
<p>SR 3.3.1.1.17 Perform LOGIC SYSTEM FUNCTIONAL TEST.</p>	<p>24 months</p>
<p>SR 3.3.1.1.18 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Neutron detectors are excluded.</li> <li>2. For Function 5 "n" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency.</li> </ol> <p>-----</p> <p>Verify the RPS RESPONSE TIME is within limits.</p>	<p>24 months on a STAGGERED TEST BASIS</p>

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Intermediate Range Monitors					
a. Neutron Flux - High	2	3	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.5 SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.16 SR 3.3.1.1.17	≤ 121/125 divisions of full scale
	5(a)	3	H	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.5 SR 3.3.1.1.16 SR 3.3.1.1.17	≤ 121/125 divisions of full scale
b. Inop	2	3	G	SR 3.3.1.1.4 SR 3.3.1.1.5 SR 3.3.1.1.17	NA
	5(a)	3	H	SR 3.3.1.1.4 SR 3.3.1.1.5 SR 3.3.1.1.17	NA
2. Average Power Range Monitors					
a. Neutron Flux - High, Setdown	2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.5 SR 3.3.1.1.7 SR 3.3.1.1.9 SR 3.3.1.1.14 SR 3.3.1.1.17	≤ 17.1% RTP
b. Flow Biased Neutron Flux - High	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.3 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.16 SR 3.3.1.1.17 SR 3.3.1.1.18	≤ 0.58 W + 63.4% RTP and ≤ 120% RTP(b)
(continued)					

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

(b) 0.58 W + 59.1% and ≤ 118.4% RTP when reset for single loop operation per LCO 3.4.1, "Recirculation Loops Operating."

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
c. Fixed Neutron Flux - High	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.17 SR 3.3.1.1.18	≤ 120% RTP
d. Inop	1,2	2	G	SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.17	NA
3. Reactor Vessel Steam Dome Pressure - High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.11 SR 3.3.1.1.16 SR 3.3.1.1.17 SR 3.3.1.1.18	≤ 1050 psig
4. Reactor Vessel Water Level - Low	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.11 SR 3.3.1.1.16 SR 3.3.1.1.17 SR 3.3.1.1.18	≥ 11.8 inches
5. Main Steam Isolation Valve - Closure	1	8	F	SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.16 SR 3.3.1.1.17 SR 3.3.1.1.18	≤ 9.8% closed
6. Drywell Pressure - High	1,2	2	G	SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.17 SR 3.3.1.1.18	≤ 2.43 psig

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Scram Discharge Volume Water Level - High					
a. Thermal Switch	1,2	2	G	SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.16 SR 3.3.1.1.17	≤ 38.9 gallons
	5(a)	2	H	SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.16 SR 3.3.1.1.17	≤ 38.9 gallons
b. Differential Pressure Switch	1,2	2	G	SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.16 SR 3.3.1.1.17	≤ 32.3 gallons
	5(a)	2	H	SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.16 SR 3.3.1.1.17	≤ 32.3 gallons
8. Turbine Stop Valve - Closure	≥ 45% RTP	4	E	SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.16 SR 3.3.1.1.17 SR 3.3.1.1.18	≤ 9.7% closed
9. Turbine Control Valve Fast Closure, Trip Oil Pressure - Low	≥ 45% RTP	2	E	SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.16 SR 3.3.1.1.17 SR 3.3.1.1.18	≥ 475 psig
10. Turbine Condenser Vacuum - Low	1	2	F	SR 3.3.1.1.5 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.17 SR 3.3.1.1.18	≥ 21.8 inches Hg vacuum
11. Reactor Mode Switch - Shutdown Position	1,2	1	G	SR 3.3.1.1.15 SR 3.3.1.1.17	NA
	5(a)	1	H	SR 3.3.1.1.15 SR 3.3.1.1.17	NA
12. Manual Scram	1,2	1	G	SR 3.3.1.1.8 SR 3.3.1.1.17	NA
	5(a)	1	H	SR 3.3.1.1.8 SR 3.3.1.1.17	NA

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

### 3.3 INSTRUMENTATION

#### 3.3.1.2 Source Range Monitor (SRM) Instrumentation

LCO 3.3.1.2 The SRM instrumentation in Table 3.3.1.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.2-1.

#### ACTIONS

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

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more required SRMs inoperable in MODE 3 or 4.	D.1 Fully insert all insertable control rods.	1 hour
	<u>AND</u> D.2 Place reactor mode switch in the shutdown position.	1 hour
E. One or more required SRMs inoperable in MODE 5.	E.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u> E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

# SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.1.2-1 to determine which SRs apply for each applicable MODE or other specified condition.  
-----

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2.2	<p>-----NOTES-----</p> <p>1. Only required to be met during CORE ALTERATIONS.</p> <p>2. One SRM may be used to satisfy more than one of the following.</p> <p>-----</p> <p>Verify an OPERABLE SRM detector is located in:</p> <p>a. The fueled region;</p> <p>b. The core quadrant where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region; and</p> <p>c. A core quadrant adjacent to where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region.</p>	12 hours
SR 3.3.1.2.3	Perform CHANNEL CHECK.	24 hours

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.2.4 -----NOTE-----            Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant.            -----</p> <p>Verify count rate is:</p> <p>a. <math>\geq 3.0</math> cps; or</p> <p>b. <math>\geq 0.7</math> cps with a signal to noise ratio <math>\geq 20:1</math>.</p>	<p>12 hours during CORE ALTERATIONS</p> <p><u>AND</u></p> <p>24 hours</p>
<p>SR 3.3.1.2.5 -----NOTE-----            The determination of signal to noise ratio is not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant.            -----</p> <p>Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.</p>	<p>7 days</p>
<p>SR 3.3.1.2.6 -----NOTE-----            Not required to be performed until 12 hours after IRMs on Range 2 or below.            -----</p> <p>Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.</p>	<p>31 days</p>

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.2.7 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Neutron detectors are excluded.</li> <li>2. Not required to be performed until 12 hours after IRMs on Range 2 or below.</li> </ol> <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>24 months</p>

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
1. Source Range Monitor	2 <sup>(a)</sup>	3	SR 3.3.1.2.1
			SR 3.3.1.2.4
			SR 3.3.1.2.6
			SR 3.3.1.2.7
	3,4	2	SR 3.3.1.2.3
			SR 3.3.1.2.4
			SR 3.3.1.2.6
			SR 3.3.1.2.7
	5	2 <sup>(b)(c)</sup>	SR 3.3.1.2.1
			SR 3.3.1.2.2
			SR 3.3.1.2.4
			SR 3.3.1.2.5
			SR 3.3.1.2.7

(a) With IRMs on Range 2 or below.

(b) Only one SRM channel is required to be OPERABLE during spiral offload or reload when the fueled region includes only that SRM detector.

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

### 3.3 INSTRUMENTATION

#### 3.3.2.1 Control Rod Block Instrumentation

LC0 3.3.2.1 The control rod block instrumentation for each Function in Table 3.3.2.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2.1-1.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One rod block monitor (RBM) channel inoperable.	A.1 Restore RBM channel to OPERABLE status.	24 hours
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u>  Two RBM channels inoperable.	B.1 Place one RBM channel in trip.	1 hour
C. Rod worth minimizer (RWM) inoperable during reactor startup.	C.1 Suspend control rod movement except by scram.  <u>OR</u>	Immediately  (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1.1 Verify $\geq 12$ rods withdrawn.	Immediately
	<u>OR</u>	
	C.2.1.2 Verify by administrative methods that startup with RWM inoperable has not been performed in the last 12 months.	Immediately
	<u>AND</u>	
	C.2.2 Verify movement of control rods is in compliance with the analyzed rod position sequence by a second licensed operator or other qualified member of the technical staff.	During control rod movement
D. RWM inoperable during reactor shutdown.	D.1 Verify movement of control rods is in compliance with analyzed rod position sequence by a second licensed operator or other qualified member of the technical staff.	During control rod movement

(continued)

ACTIONS

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

SURVEILLANCE REQUIREMENTS

- NOTES-----
1. Refer to Table 3.3.2.1-1 to determine which SRs apply for each Control Rod Block Function.
  2. When an RBM channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains control rod block capability.
- 

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.1	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.2	<p>-----NOTE-----</p> <p>Not required to be performed until 1 hour after any control rod is withdrawn at <math>\leq 10\%</math> RTP in MODE 2.</p> <p>-----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	92 days
SR 3.3.2.1.3	<p>-----NOTE-----</p> <p>Not required to be performed until 1 hour after THERMAL POWER is <math>\leq 10\%</math> RTP in MODE 1.</p> <p>-----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	92 days
SR 3.3.2.1.4	<p>-----NOTE-----</p> <p>Neutron detectors are excluded.</p> <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	92 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.5	<p>-----NOTE----- Neutron detectors are excluded. -----</p> <p>Verify the RBM is not bypassed when THERMAL POWER is <math>\geq</math> 30% RTP and when a peripheral control rod is not selected.</p>	92 days
SR 3.3.2.1.6	Verify the RWM is not bypassed when THERMAL POWER is $\leq$ 10% RTP.	24 months
SR 3.3.2.1.7	<p>-----NOTE----- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	24 months
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with analyzed rod position sequence.	Prior to declaring RWM OPERABLE following loading of sequence into RWM
SR 3.3.2.1.9	Verify the bypassing and position of control rods required to be bypassed in RWM by a second licensed operator or other qualified member of the technical staff.	Prior to and during the movement of control rods bypassed in RWM

Control Rod Block Instrumentation  
3.3.2.1

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Rod Block Monitor				
a. Upscale	(a)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5	As specified in the COLR
b. Inop	(a)	2	SR 3.3.2.1.1 SR 3.3.2.1.5	NA
c. Downscale	(a)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5	$\geq 3.8\%$ RTP
2. Rod Worth Minimizer	1 <sup>(b)</sup> , 2 <sup>(b)</sup>	1	SR 3.3.2.1.2 SR 3.3.2.1.3 SR 3.3.2.1.6 SR 3.3.2.1.8 SR 3.3.2.1.9	NA
3. Reactor Mode Switch - Shutdown Position	(c)	2	SR 3.3.2.1.7	NA

(a) THERMAL POWER  $\geq 30\%$  RTP and no peripheral control rod selected.

(b) With THERMAL POWER  $\leq 10\%$  RTP.

(c) Reactor mode switch in the shutdown position.



Feedwater System and Main Turbine High Water Level Trip Instrumentation  
3.3.2.2

3.3 INSTRUMENTATION

3.3.2.2 Feedwater System and Main Turbine High Water Level Trip Instrumentation

LC0 3.3.2.2 Two channels of Feedwater System and main turbine high water level trip instrumentation shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Feedwater System and main turbine high water level trip channels inoperable.	A.1 Restore Feedwater System and main turbine high water level trip capability.	2 hours
B. Required Action and associated Completion Time not met.	B.1 -----NOTE----- Only applicable if inoperable channel is the result of an inoperable feedwater pump breaker. -----	
	Remove affected feedwater pump(s) from service.	4 hours
	<u>OR</u>  Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 2 hours.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.2.2.1 Perform CHANNEL CHECK.	24 hours
SR 3.3.2.2.2 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.2.3 Perform CHANNEL CALIBRATION. The Allowable Value shall be $\leq$ 54.4 inches.	12 months
SR 3.3.2.2.4 Perform LOGIC SYSTEM FUNCTIONAL TEST, including breaker and valve actuation.	24 months

### 3.3 INSTRUMENTATION

#### 3.3.3.1 Post Accident Monitoring (PAM) Instrumentation

LC0 3.3.3.1 The PAM instrumentation for each Function in Table 3.3.3.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

- NOTES-----
1. LC0 3.0.4 is not applicable.
  2. Separate Condition entry is allowed for each Function.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.6.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one required channel to OPERABLE status.	7 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1 Be in MODE 3.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.6.	Immediately

# SURVEILLANCE REQUIREMENTS

- NOTES-----
1. These SRs apply to each Function in Table 3.3.3.1-1, except where identified in the SR.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required channel in the associated Function is OPERABLE.
- 

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK.	31 days
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION for Functions 7 and 8.	92 days
SR 3.3.3.1.3	Perform CHANNEL CALIBRATION for Functions other than Functions 7 and 8.	24 months

Table 3.3.3.1-1 (page 1 of 1)  
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1. Reactor Vessel Pressure	2	E
2. Reactor Vessel Water Level		
a. Wide Range	2	E
b. Narrow Range	2	E
3. Torus Water Level	2	E
4. Drywell Pressure		
a. Wide Range	2	E
b. Narrow Range	2	E
5. Drywell Radiation Monitors	2	F
6. Penetration Flow Path PCIV Position	2 per penetration flow path <sup>(a)(b)</sup>	E
7. Drywell H <sub>2</sub> Concentration Analyzer and Monitor	2	E
8. Drywell O <sub>2</sub> Concentration Analyzer and Monitor	2	E
9. Torus Water Temperature	2	E

(a) Not required for isolation valves whose associated penetration flow path 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.

### 3.3 INSTRUMENTATION

#### 3.3.4.1 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

LC0 3.3.4.1 Two channels per trip system for each ATWS-RPT instrumentation Function listed below shall be OPERABLE:

- a. Reactor Vessel Water Level—Low Low; and
- b. Reactor Vessel Steam Dome Pressure—High.

APPLICABILITY: MODE 1.

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Restore channel to OPERABLE status.	14 days
	<u>OR</u> A.2 -----NOTE----- Not applicable if inoperable channel is the result of an inoperable breaker. ----- Place channel in trip.	14 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One Function with ATWS-RPT trip capability not maintained.	B.1 Restore ATWS-RPT trip capability.	72 hours
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1 Restore ATWS-RPT trip capability for one Function.	1 hour
D. Required Action and associated Completion Time not met.	D.1 Remove the associated recirculation pump from service.	6 hours
	<u>OR</u> D.2 Be in MODE 2.	6 hours



## SURVEILLANCE REQUIREMENTS

-----NOTE-----  
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains ATWS-RPT trip capability.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.4.1.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.4.1.2 Calibrate the trip units.	31 days
SR 3.3.4.1.3 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.4.1.4 Perform CHANNEL CALIBRATION. The Allowable Values shall be: <ul style="list-style-type: none"> <li>a. Reactor Vessel Water Level—Low Low:  <math>\geq -56.3</math> inches with time delay set to  <math>\geq 7.2</math> seconds and <math>\leq 10.8</math> seconds; and</li> <li>b. Reactor Vessel Steam Dome              Pressure—High: <math>\leq 1219</math> psig.</li> </ul>	24 months
SR 3.3.4.1.5 Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months

### 3.3 INSTRUMENTATION

#### 3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

LC0 3.3.5.1 The ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.1-1.

#### ACTIONS

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

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

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	<p>B.1</p> <p>-----NOTES-----</p> <p>1. Only applicable in MODES 1, 2, and 3.</p> <p>2. Only applicable for Functions 1.a, 1.b, 2.a, 2.b, 2.d, and 2.j.</p> <p>-----</p> <p>Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.</p>	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	<p><u>AND</u></p> <p>B.2</p> <p>-----NOTE-----</p> <p>Only applicable for Functions 3.a and 3.b.</p> <p>-----</p> <p>Declare High Pressure Coolant Injection (HPCI) System inoperable.</p>	
	<p><u>AND</u></p> <p>B.3</p> <p>Place channel in trip.</p>	24 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3.  2. Only applicable for Functions 1.c, 1.e, 2.c, 2.e, 2.g, 2.h, 2.i, and 2.k. -----  Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	<u>AND</u>  C.2 Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1 -----NOTE----- Only applicable if HPCI pump suction is not aligned to the suppression pool. -----  Declare HPCI System inoperable.	1 hour from discovery of loss of HPCI initiation capability
	<u>AND</u>	
	D.2.1 Place channel in trip.	24 hours
	<u>OR</u>  D.2.2 Align the HPCI pump suction to the suppression pool.	24 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3.  2. Only applicable for Functions 1.d and 2.f. -----  Declare supported feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	<u>AND</u>  E.2 Restore channel to OPERABLE status.	7 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	F.1 Declare Automatic Depressurization System (ADS) valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	<u>AND</u>	
	F.2 Place channel in trip.	96 hours from discovery of inoperable channel concurrent with HPCI or reactor core isolation cooling (RCIC) inoperable
		<u>AND</u> 8 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	G.1 Declare ADS valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	<u>AND</u>	
	G.2 Restore channel to OPERABLE status.	96 hours from discovery of inoperable channel concurrent with HPCI or RCIC inoperable
		<u>AND</u> 8 days
H. Required Action and associated Completion Time of Condition B, C, D, E, F, or G not met.	H.1 Declare associated supported feature(s) inoperable.	Immediately



SURVEILLANCE REQUIREMENTS

- NOTES-----
1. Refer to Table 3.3.5.1-1 to determine which SRs apply for each ECCS Function.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 3.c, 3.f, and 3.g; and (b) for up to 6 hours for Functions other than 3.c, 3.f, and 3.g provided the associated Function or the redundant Function maintains ECCS initiation capability.
- 

SURVEILLANCE	FREQUENCY
SR 3.3.5.1.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.5.1.2 Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.5.1.3 Perform CHANNEL CALIBRATION.	60 days
SR 3.3.5.1.4 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.1.5 Calibrate the trip unit.	92 days
SR 3.3.5.1.6 Perform CHANNEL CALIBRATION.	92 days
SR 3.3.5.1.7 Perform CHANNEL CALIBRATION.	184 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.5.1.8 Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.1.9 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low	1,2,3, 4(a), 5(a)	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.9	$\geq -56.78$ inches
b. Drywell Pressure - High	1,2,3	4(b)	B	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\leq 2.43$ psig
c. Reactor Steam Dome Pressure - Low (Permissive)	1,2,3  4(a), 5(a)	2  2	C  B	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9  SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\geq 306$ psig and $\leq 342$ psig  $\geq 306$ psig and $\leq 342$ psig
d. Core Spray Pump Discharge Flow - Low (Bypass)	1,2,3, 4(a), 5(a)	1 per pump	E	SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.8 SR 3.3.5.1.9	$\geq 577$ gpm and $\leq 830$ gpm
e. Core Spray Pump Start - Time Delay Relay	1, 2, 3 4(a), 5(a)	1 per pump	C	SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 11.4$ seconds
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level - Low Low	1,2,3, 4(a), 5(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.9	$\geq -56.78$ inches
b. Drywell Pressure - High	1,2,3	4	B	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\leq 2.43$ psig
c. Reactor Steam Dome Pressure - Low (Permissive)	1,2,3  4(a), 5(a)	2  2	C  B	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9  SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\geq 306$ psig and $\leq 342$ psig  $\geq 306$ psig and $\leq 342$ psig
(continued)					

(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2, "ECCS - Shutdown."

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

Table 3.3.5.1-1 (page 2 of 4)  
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
d. Reactor Steam Dome Pressure - Low (Break Detection)	1,2,3	4	B	SR 3.3.5.1.4 SR 3.3.5.1.7 SR 3.3.5.1.9	$\geq 868$ psig and $\leq 891$ psig
e. Low Pressure Coolant Injection Pump Start - Time Delay Relay Pumps B and D	1,2,3, 4(a), 5(a)	1 per pump	C	SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 6.7$ seconds
f. Low Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1,2,3, 4(a), 5(a)	1 per loop	E	SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.8 SR 3.3.5.1.9	$\geq 2526$ gpm
g. Recirculation Pump Differential Pressure - High (Break Detection)	1, 2, 3	4 per pump	C	SR 3.3.5.1.4 SR 3.3.5.1.8 SR 3.3.5.1.9	$\geq 2.3$ psid
h. Recirculation Riser Differential Pressure - High (Break Detection)	1, 2, 3	4	C	SR 3.3.5.1.4 SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 2.15$ psid
i. Recirculation Pump Differential Pressure Time Delay - Relay (Break Detection)	1, 2, 3	2	C	SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 0.82$ seconds
j. Reactor Steam Dome Pressure Time Delay - Relay (Break Detection)	1, 2, 3	2	B	SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 2.26$ seconds
k. Recirculation Riser Differential Pressure Time Delay - Relay (Break Detection)	1, 2, 3	2	C	SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 0.82$ seconds

(continued)

(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2.

Table 3.3.5.1-1 (page 3 of 4)  
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level - Low Low	1, 2(c), 3(c)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.9	$\geq -56.78$ inches
b. Drywell Pressure - High	1, 2(c), 3(c)	4	B	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\leq 2.43$ psig
c. Reactor Vessel Water Level - High	1, 2(c), 3(c)	2	C	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.9	$\leq 54.23$ inches
d. Contaminated Condensate Storage Tank (CCST) Level - Low	1, 2(c), 3(c)	2	D	SR 3.3.5.1.4 SR 3.3.5.1.8 SR 3.3.5.1.9	$\geq 598$ ft 1 inch
e. Suppression Pool Water Level - High	1, 2(c), 3(c)	2	D	SR 3.3.5.1.4 SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 15$ ft 11.25 inches
f. High Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1, 2(c), 3(c)	1	E	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\geq 634$ gpm
g. Manual Initiation	1, 2(c), 3(c)	1	C	SR 3.3.5.1.9	NA
4. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level - Low Low	1, 2(c), 3(c)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.9	$\geq -56.78$ inches
b. Drywell Pressure - High	1, 2(c), 3(c)	2	F	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\leq 2.43$ psig
c. Automatic Depressurization System Initiation Timer	1, 2(c), 3(c)	1	G	SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 119$ seconds
(continued)					

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

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. ADS Trip System A (continued)					
d. Core Spray Pump Discharge Pressure - High	1, 2(c), 3(c)	2	G	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\geq 101.9$ psig and $\leq 148.1$ psig
e. Low Pressure Coolant Injection Pump Discharge Pressure - High	1, 2(c), 3(c)	4	G	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\geq 101.6$ psig and $\leq 148.4$ psig
f. Automatic Depressurization System Low Low Water Level Actuation Timer	1, 2(c), 3(c)	1	G	SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 530$ seconds
5. ADS Trip System B					
a. Reactor Vessel Water Level - Low Low	1, 2(c), 3(c)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.9	$\geq -56.78$ inches
b. Drywell Pressure - High	1, 2(c), 3(c)	2	F	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\leq 2.43$ psig
c. Automatic Depressurization System Initiation Timer	1, 2(c), 3(c)	1	G	SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 119$ seconds
d. Core Spray Pump Discharge Pressure - High	1, 2(c), 3(c)	2	G	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\geq 101.9$ psig and $\leq 148.1$ psig
e. Low Pressure Coolant Injection Pump Discharge Pressure - High	1, 2(c), 3(c)	4	G	SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.9	$\geq 101.6$ psig and $\leq 148.4$ psig
f. Automatic Depressurization System Low Low Water Level Actuation Timer	1, 2(c), 3(c)	1	G	SR 3.3.5.1.8 SR 3.3.5.1.9	$\leq 530$ seconds

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

### 3.3 INSTRUMENTATION

#### 3.3.5.2 Reactor Core Isolation Cooling (RCIC) System Instrumentation

LC0 3.3.5.2 The RCIC System instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

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

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1 Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	<u>AND</u> B.2 Place channel in trip.	24 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	C.1 Restore channel to OPERABLE status.	24 hours
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	<p>D.1 -----NOTE----- Only applicable if RCIC pump suction is not aligned to the suppression pool. -----</p> <p>Declare RCIC System inoperable.</p> <p><u>AND</u></p> <p>D.2.1 Place channel in trip.</p> <p><u>OR</u></p> <p>D.2.2 Align RCIC pump suction to the suppression pool.</p>	<p>1 hour from discovery of loss of RCIC initiation capability</p> <p>24 hours</p> <p>24 hours</p>
E. Required Action and associated Completion Time of Condition B, C, or D not met.	E.1 Declare RCIC System inoperable.	Immediately



## SURVEILLANCE REQUIREMENTS

### NOTES

1. Refer to Table 3.3.5.2-1 to determine which SRs apply for each RCIC Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2 and 5; and (b) for up to 6 hours for Functions 1, 3, and 4 provided the associated Function maintains RCIC initiation capability.

SURVEILLANCE	FREQUENCY
SR 3.3.5.2.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.5.2.2 Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.5.2.3 Perform CHANNEL CALIBRATION.	60 days
SR 3.3.5.2.4 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.2.5 Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.2.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

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

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low	4	B	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.3 SR 3.3.5.2.6	$\geq -56.78$ inches
2. Reactor Vessel Water Level - High	2	C	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.3 SR 3.3.5.2.6	$\leq 54.23$ inches
3. Contaminated Condensate Storage Tank (CCST) Level - Low	2	D	SR 3.3.5.2.4 SR 3.3.5.2.5 SR 3.3.5.2.6	$\geq 598$ ft 1 inch
4. Suppression Pool Water Level - High	2	D	SR 3.3.5.2.4 SR 3.3.5.2.5 SR 3.3.5.2.6	$\leq 15$ ft 11.25 inches
5. Manual Initiation	1	C	SR 3.3.5.2.6	NA

### 3.3 INSTRUMENTATION

#### 3.3.6.1 Primary Containment Isolation Instrumentation

LC0 3.3.6.1 The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 1.a, 2.a, 2.b, 3.d, 5.b, and 6.b  <u>AND</u> 24 hours for Functions other than Functions 1.a, 2.a, 2.b, 3.d, 5.b, and 6.b
B. One or more automatic Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour

(continued)

Primary Containment Isolation Instrumentation  
3.3.6.1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1 Isolate associated main steam line (MSL).  <u>OR</u>  D.2.1 Be in MODE 3.  <u>AND</u>  D.2.2 Be in MODE 4.	12 hours   12 hours   36 hours
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 2.	8 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1 Isolate the affected penetration flow path(s).	1 hour

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Required Action and associated Completion Time for Condition F not met.</p> <p><u>OR</u></p> <p>As required by Required Action C.1 and referenced in Table 3.3.6.1-1.</p>	<p>G.1 Be in MODE 3.</p>	12 hours
	<p><u>AND</u></p> <p>G.2 Be in MODE 4.</p>	36 hours
<p>H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.</p> <p><u>OR</u></p>	<p>H.1 Declare associated standby liquid control subsystem (SLC) inoperable.</p>	1 hour
	<p><u>OR</u></p> <p>H.2 Isolate the Reactor Water Cleanup System.</p>	1 hour
<p>I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.</p> <p><u>OR</u></p>	<p>I.1 Initiate action to restore channel to OPERABLE status.</p>	Immediately
	<p><u>OR</u></p> <p>I.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System.</p>	Immediately

## SURVEILLANCE REQUIREMENTS

- NOTES-----
1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability.
- 

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.1.2 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.1.3 Calibrate the trip unit.	92 days
SR 3.3.6.1.4 Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.1.5 Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.6.1.6 Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.1.7 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

Primary Containment Isolation Instrumentation  
3.3.6.1

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	$\geq -55.2$ inches
b. Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	$\geq 831$ psig
c. Main Steam Line Pressure - Timer	1	2	E	SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	$\leq 0.331$ seconds
d. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	$\leq 138\%$ rated steam flow
e. Main Steam Line Tunnel Temperature - High	1,2,3	2 per trip string	D	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	$\leq 198^{\circ}\text{F}$
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	$\geq 11.8$ inches
b. Drywell Pressure - High	1,2,3	2	G	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	$\leq 2.43$ psig
c. Drywell Radiation - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	$\leq 70$ R/hr

(continued)

Primary Containment Isolation Instrumentation  
3.3.6.1

Table 3.3.6.1-1 (page 2 of 3)  
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 151% rated steam flow
b. HPCI Steam Line Flow - Timer	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 3.2 seconds and ≤ 8.8 seconds
c. HPCI Steam Supply Line Pressure - Low	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 113.0 psig
d. Drywell Pressure - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≤ 2.43 psig
e. HPCI Turbine Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 169°F
4. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≤ 175% rated steam flow
b. RCIC Steam Line Flow - Timer	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 3.2 seconds and ≤ 8.8 seconds
c. RCIC Steam Supply Line Pressure - Low	1,2,3	4(a)	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≥ 54 psig
d. RCIC Turbine Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 169°F

(continued)

(a) Only inputs into one trip system.



Primary Containment Isolation Instrumentation  
3.3.6.1

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup System Isolation					
a. SLC System Initiation	1,2	1	H	SR 3.3.6.1.7	NA
b. Reactor Vessel Water Level - Low	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 11.8 inches
6. RHR Shutdown Cooling System Isolation					
a. Reactor Vessel Pressure - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≤ 130 psig
b. Reactor Vessel Water Level - Low	3,4,5	2 <sup>(b)</sup>	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 11.8 inches

(b) In MODES 4 and 5, provided RHR Shutdown Cooling System integrity is maintained, only one channel per trip system with an isolation signal available to one shutdown cooling pump suction isolation valve is required.

### 3.3 INSTRUMENTATION

#### 3.3.6.2 Secondary Containment Isolation Instrumentation

LC0 3.3.6.2 The secondary containment isolation instrumentation for each Function in Table 3.3.6.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.2-1.

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 1 and 2  <u>AND</u> 24 hours for Functions other than Functions 1 and 2
B. One or more Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour

(continued)

Secondary Containment Isolation Instrumentation  
3.3.6.2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1.1 Isolate the associated penetration flow path.	1 hour
	<u>OR</u>	
	C.1.2 Declare associated secondary containment isolation valves inoperable.	1 hour
	<u>AND</u>	
	C.2.1 Place the associated standby gas treatment (SGT) subsystem in operation.	1 hour
	<u>OR</u>	
	C.2.2 Declare associated SGT subsystem inoperable.	1 hour

## SURVEILLANCE REQUIREMENTS

- NOTES-----
1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability.
- 

SURVEILLANCE	FREQUENCY
SR 3.3.6.2.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2.2 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.2.3 Calibrate the trip unit.	92 days
SR 3.3.6.2.4 Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.2.5 Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.2.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

Secondary Containment Isolation Instrumentation  
3.3.6.2

Table 3.3.6.2-1 (page 1 of 1)  
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low	1,2,3, (a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.5 SR 3.3.6.2.6	$\geq$ 11.8 inches
2. Drywell Pressure - High	1,2,3	2	SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.6	$\leq$ 2.43 psig
3. Reactor Building Exhaust Radiation - High	1,2,3, (a),(b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.6	$\leq$ 9 mR/hr
4. Refueling Floor Radiation - High	1,2,3, (a),(b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.6	$\leq$ 100 mR/hr

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

(b) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in secondary containment.

### 3.3 INSTRUMENTATION

#### 3.3.6.3 Relief Valve Instrumentation

LC0 3.3.6.3 The relief valve instrumentation for each Function in Table 3.3.6.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One relief valve inoperable due to inoperable channel(s).	A.1 Restore channel(s) to OPERABLE status.	14 days
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u>  Two or more relief valves inoperable due to inoperable channels.	B.1 Be in MODE 3.  <u>AND</u>  B.2 Be in MODE 4.	12 hours    36 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.6.3-1 to determine which SRs apply for each Function.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.6.3.1 Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.3.2 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

Relief Valve Instrumentation  
3.3.6.3

Table 3.3.6.3-1 (page 1 of 1)  
Relief Valve Set Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Low Set Relief Valves			
a. Reactor Vessel Pressure Setpoint	1 per valve	SR 3.3.6.3.1 SR 3.3.6.3.2	$\leq 1108$ psig
b. Reactuation Time Delay	2 per valve	SR 3.3.6.3.1 SR 3.3.6.3.2	$\geq 10.5$ seconds and $\leq 17.8$ seconds
2. Relief Valves			
a. Reactor Vessel Pressure Setpoint	1 per valve	SR 3.3.6.3.1 SR 3.3.6.3.2	$\leq 1128$ psig



### 3.3 INSTRUMENTATION

#### 3.3.7.1 Control Room Emergency Ventilation (CREV) System Isolation Instrumentation

LC0 3.3.7.1 The CREV System isolation instrumentation for each Function in Table 3.3.7.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.7.1-1.

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.7.1-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	B.1 Declare CREV System inoperable.	1 hour from discovery of loss of CREV System isolation capability
	<u>AND</u> B.2 Place channel in trip.	24 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.7.1-1.	C.1 Declare CREV System inoperable.	1 hour from discovery of loss of CREV System isolation capability in both trip systems
	<u>AND</u> C.2 Place channel in trip.	12 hours
D. Required Action and associated Completion Time of Condition B or C not met.	D.1 Isolate each required control room penetration flow path.	1 hour
	<u>OR</u>	
	D.2 -----NOTE----- Only applicable to Function 3 channels. -----  Isolate associated main steam line (MSL).	1 hour
	<u>OR</u> D.3 Declare CREV System inoperable.	1 hour

## SURVEILLANCE REQUIREMENTS

- NOTES-----
1. Refer to Table 3.3.7.1-1 to determine which SRs apply for each CREV System Isolation Function.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains CREV System isolation capability.
- 

SURVEILLANCE	FREQUENCY
SR 3.3.7.1.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.7.1.2 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.7.1.3 Calibrate the trip units.	92 days
SR 3.3.7.1.4 Perform CHANNEL CALIBRATION.	92 days
SR 3.3.7.1.5 Perform CHANNEL CALIBRATION.	24 months
SR 3.3.7.1.6 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

CREV System Isolation Instrumentation  
3.3.7.1

Table 3.3.7.1-1 (page 1 of 1)  
Control Room Emergency Ventilation (CREV) System Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low	1,2,3, (a)	2	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.5 SR 3.3.7.1.6	$\geq$ 11.8 inches
2. Drywell Pressure - High	1,2,3	2	C	SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.6	$\leq$ 2.43 psig
3. Main Steam Line Flow - High	1,2,3	2 per MSL	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	$\leq$ 138% rated steam flow
4. Refueling Floor Radiation - High	1,2,3, (a),(b)	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.6	$\leq$ 100 mR/hr
5. Reactor Building Ventilation Exhaust Radiation - High	1,2,3, (a),(b)	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.4 SR 3.3.7.1.6	$\leq$ 9 mR/hr

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

(b) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in the secondary containment.

### 3.3 INSTRUMENTATION

#### 3.3.7.2 Mechanical Vacuum Pump Trip Instrumentation

LC0 3.3.7.2 Four channels of Main Steam Line Radiation-High Function for the mechanical vacuum pump trip shall be OPERABLE.

APPLICABILITY: MODES 1 and 2 with the mechanical vacuum pump in service and any main steam line not isolated.

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Restore channel to OPERABLE status.	12 hours
	<u>OR</u> A.2 -----NOTE----- Not applicable if inoperable channel is the result of an inoperable mechanical vacuum pump breaker. ----- Place channel in trip.	12 hours
B. Mechanical vacuum pump trip capability not maintained.	B.1 Restore trip capability.	1 hour

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Isolate the mechanical vacuum pump.	12 hours
	<u>OR</u>	
	C.2 Remove the mechanical vacuum pump breaker from service.	12 hours
	<u>OR</u>	
	C.3 Isolate the main steam lines.	12 hours
	<u>OR</u>	
	C.4 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided mechanical vacuum pump trip capability is maintained.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.7.2.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.7.2.2 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.7.2.3 -----NOTE----- Radiation detectors are excluded. ----- Perform CHANNEL CALIBRATION.	92 days
SR 3.3.7.2.4 Perform CHANNEL CALIBRATION. The Allowable Value shall be $\leq 7700$ mR/hr.	24 months
SR 3.3.7.2.5 Perform LOGIC SYSTEM FUNCTIONAL TEST including mechanical vacuum pump breaker actuation.	24 months

### 3.3 INSTRUMENTATION

#### 3.3.8.1 Loss of Power (LOP) Instrumentation

LC0 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
When the associated diesel generator is required to be  
OPERABLE by LC0 3.8.2, "AC Sources—Shutdown."

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Declare associated diesel generator (DG) inoperable.	Immediately



# SURVEILLANCE REQUIREMENTS

- NOTES-----
1. Refer to Table 3.3.8.1-1 to determine which SRs apply for each LOP Function.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 2 hours provided the associated Function maintains LOP initiation capability.
- 

SURVEILLANCE	FREQUENCY
SR 3.3.8.1.1 Perform CHANNEL FUNCTIONAL TEST.	18 months
SR 3.3.8.1.2 Perform CHANNEL CALIBRATION.	18 months
SR 3.3.8.1.3 Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.8.1.4 Perform CHANNEL CALIBRATION.	24 months
SR 3.3.8.1.5 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

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

FUNCTION	REQUIRED CHANNELS PER BUS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. 4160 V Essential Service System Bus Undervoltage (Loss of Voltage)	2	SR 3.3.8.1.3 SR 3.3.8.1.4 SR 3.3.8.1.5	$\geq 2797$ V and $\leq 3063$ V
2. 4160 V Essential Service System Bus Undervoltage (Degraded Voltage)			
a. Bus Undervoltage/Time Delay	2	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.5	$\geq 3885$ V and $\leq 3948$ V with time delay $\geq 5.7$ seconds and $\leq 8.3$ seconds
b. Time Delay (No LOCA)	1	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.5	$\geq 276$ seconds and $\leq 324$ seconds

### 3.3 INSTRUMENTATION

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

LC0 3.3.8.2 Two RPS electric power monitoring assemblies shall be OPERABLE for each inservice RPS motor generator set or alternate power supply.

APPLICABILITY: MODES 1 and 2,  
MODE 5 with any control rod withdrawn from a core cell  
containing one or more fuel assemblies.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both inservice power supplies with one electric power monitoring assembly inoperable.	A.1 Remove associated inservice power supply(s) from service.	72 hours
B. One or both inservice power supplies with both electric power monitoring assemblies inoperable.	B.1 Remove associated inservice power supply(s) from service.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1 or 2.	C.1 Be in MODE 3.	12 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met in MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.8.2.1 -----NOTE----- Only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 for <math>\geq 24</math> hours. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	184 days
<p>SR 3.3.8.2.2 Perform CHANNEL CALIBRATION. The Allowable Values shall be:</p> <p>a. Overvoltage <math>\leq 129.4</math> V, with time delay set to <math>\leq 3.59</math> seconds.</p> <p>b. Undervoltage <math>\geq 105.6</math> V, with time delay set to <math>\leq 3.59</math> seconds.</p> <p>c. Underfrequency <math>\geq 55.6</math> Hz, with time delay set to <math>\leq 3.59</math> seconds.</p>	24 months
SR 3.3.8.2.3 Perform a system functional test.	24 months

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.1 Recirculation Loops Operating

LCO 3.4.1 Two recirculation loops with matched flows shall be in operation.

OR

One recirculation loop shall be in operation with the following limits applied when the associated LCO is applicable:

- a. LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," single loop operation limits specified in the COLR;
- b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," single loop operation limits specified in the COLR;
- c. LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," Function 2.b (Average Power Range Monitors Flow Biased Neutron Flux-High), Allowable Value of Table 3.3.1.1-1 is reset for single loop operation; and
- d. LCO 3.3.2.1, "Control Rod Block Instrumentation," Function 1.a (Rod Block Monitor-Upscale), Allowable Value of Table 3.3.2.1-1 is reset for single loop operation.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. No recirculation loops in operation.	A.1 Be in MODE 2.	8 hours
	<u>AND</u>	
	A.2 Be in MODE 3.	12 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Recirculation loop flow mismatch not within limits.	B.1 Declare the recirculation loop with lower flow to be "not in operation."	2 hours
C. Requirements of the LCO not met for reasons other than Condition A or B.	C.1 Satisfy the requirements of the LCO.	24 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.1.1 -----NOTE-----  Not required to be performed until 24 hours after both recirculation loops are in operation.  -----</p> <p>Verify jet pump loop flow mismatch with both recirculation loops in operation is:</p> <p>a. <math>\leq 10\%</math> of rated core flow when operating at <math>&lt; 70\%</math> of rated core flow; and</p> <p>b. <math>\leq 5\%</math> of rated core flow when operating at <math>\geq 70\%</math> of rated core flow.</p>	24 hours

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.2 Jet Pumps

LC0 3.4.2 All jet pumps shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more jet pumps inoperable.	A.1 Be in MODE 3.	12 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.2.1 -----NOTES-----</p> <ol style="list-style-type: none"> <li>Not required to be performed until 4 hours after associated recirculation loop is in operation.</li> <li>Not required to be performed until 24 hours after &gt; 25% RTP.</li> </ol> <p>-----</p> <p>Verify at least one of the following criteria (a or b) is satisfied for each operating recirculation loop:</p> <ol style="list-style-type: none"> <li>Recirculation pump flow to speed ratio differs by <math>\leq 10\%</math> from established patterns.</li> <li>Each jet pump flow differs by <math>\leq 10\%</math> from established patterns.</li> </ol>	24 hours

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.3 Safety and Relief Valves

LC0 3.4.3        The safety function of 9 safety valves shall be OPERABLE.  
  
                    AND  
  
                    The relief function of 5 relief valves shall be OPERABLE.

APPLICABILITY:    MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One relief valve inoperable.	A.1        Restore the relief valve to OPERABLE status.	14 days
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u>  Two or more relief valves inoperable.  <u>OR</u>  One or more safety valves inoperable.	B.1        Be in MODE 3.  <u>AND</u>  B.2        Be in MODE 4.	12 hours    36 hours



SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY										
SR 3.4.3.1	<p>Verify the safety function lift setpoints of the safety valves are as follows:</p> <table><thead><tr><th><u>Number of Safety Valves</u></th><th><u>Setpoint (psig)</u></th></tr></thead><tbody><tr><td>1</td><td>1135 ± 11.3</td></tr><tr><td>2</td><td>1240 ± 12.4</td></tr><tr><td>2</td><td>1250 ± 12.5</td></tr><tr><td>4</td><td>1260 ± 12.6</td></tr></tbody></table>	<u>Number of Safety Valves</u>	<u>Setpoint (psig)</u>	1	1135 ± 11.3	2	1240 ± 12.4	2	1250 ± 12.5	4	1260 ± 12.6	In accordance with the Inservice Testing Program
<u>Number of Safety Valves</u>	<u>Setpoint (psig)</u>											
1	1135 ± 11.3											
2	1240 ± 12.4											
2	1250 ± 12.5											
4	1260 ± 12.6											
SR 3.4.3.2	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each relief valve opens when manually actuated.</p>	24 months										
SR 3.4.3.3	<p>-----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify each relief valve actuates on an actual or simulated automatic initiation signal.</p>	24 months										

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.4 RCS Operational LEAKAGE

LCO 3.4.4 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE;
- b.  $\leq 5$  gpm unidentified LEAKAGE;
- c.  $\leq 25$  gpm total LEAKAGE averaged over the previous 24 hour period; and
- d.  $\leq 2$  gpm increase in unidentified LEAKAGE within the previous 24 hour period in MODE 1.

APPLICABILITY: MODES 1, 2, and 3.

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Unidentified LEAKAGE not within limit.</p> <p><u>OR</u></p> <p>Total LEAKAGE not within limit.</p>	<p>A.1 Reduce LEAKAGE to within limits.</p>	<p>4 hours</p>
<p>B. Unidentified LEAKAGE increase not within limit.</p>	<p>B.1 Reduce unidentified LEAKAGE increase to within limits.</p> <p><u>OR</u></p>	<p>4 hours</p> <p>(continued)</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Verify source of unidentified LEAKAGE increase is not intergranular stress corrosion cracking susceptible material.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met.  <u>OR</u>  Pressure boundary LEAKAGE exists.	C.1 Be in MODE 3.  <u>AND</u>  C.2 Be in MODE 4.	12 hours   36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.4.1 Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	12 hours

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.5 RCS Leakage Detection Instrumentation

LCO 3.4.5      The following RCS leakage detection instrumentation shall be OPERABLE:

- a. Drywell floor drain sump monitoring system; and
- b. Primary containment atmospheric particulate monitoring system.

APPLICABILITY:    MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell floor drain sump monitoring system inoperable.	-----NOTE----- LCO 3.0.4 is not applicable. -----	30 days
	A.1      Restore drywell floor drain sump monitoring system to OPERABLE status.	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Primary containment atmospheric particulate monitoring system inoperable.	<p>-----NOTE-----                      LCO 3.0.4 is not applicable.                      -----</p> <p>B.1 Analyze grab samples of primary containment atmosphere.</p> <p><u>AND</u></p> <p>B.2 Restore primary containment atmospheric particulate monitoring system to OPERABLE status.</p>	<p>Once per 12 hours</p> <p>30 days</p>
C. Required Action and associated Completion Time of Condition A or B not met.	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>
D. All required leakage detection systems inoperable.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required leakage detection instrumentation is OPERABLE.  
-----

SURVEILLANCE	FREQUENCY
SR 3.4.5.1 Perform a CHANNEL CHECK of the the primary containment atmospheric particulate monitoring system.	12 hours
SR 3.4.5.2 Perform a CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	31 days
SR 3.4.5.3 Perform a CHANNEL CALIBRATION of required leakage detection instrumentation.	24 months

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.6 RCS Specific Activity

LCO 3.4.6 The specific activity of the reactor coolant shall be limited to DOSE EQUIVALENT I-131 specific activity  $\leq 0.2 \mu\text{Ci/gm}$ .

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

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor coolant specific activity $> 0.2 \mu\text{Ci/gm}$ and $\leq 4.0 \mu\text{Ci/gm}$ DOSE EQUIVALENT I-131.	-----NOTE----- LCO 3.0.4 is not applicable. -----	
	A.1 Determine DOSE EQUIVALENT I-131.  <u>AND</u> A.2 Restore DOSE EQUIVALENT I-131 to within limits.	Once per 4 hours  48 hours
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u>  Reactor Coolant specific activity $> 4.0 \mu\text{Ci/gm}$ DOSE EQUIVALENT I-131.	B.1 Determine DOSE EQUIVALENT I-131.  <u>AND</u>	Once per 4 hours
	B.2.1 Isolate all main steam lines.  <u>OR</u>	12 hours  (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.2.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2.2.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.6.1    -----NOTE----- Only required to be performed in MODE 1. ----- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity is $\leq 0.2 \mu\text{Ci/gm.}$	7 days



3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 Residual Heat Removal (RHR) Shutdown Cooling System—Hot Shutdown

LCO 3.4.7 Two RHR shutdown cooling subsystems shall be OPERABLE.

-----NOTE-----  
One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.  
-----

APPLICABILITY: MODE 3, with reactor steam dome pressure less than the RHR cut-in permissive pressure.

ACTIONS

- NOTES-----
1. LCO 3.0.4 is not applicable.
  2. Separate Condition entry is allowed for each RHR shutdown cooling subsystem.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Initiate action to restore RHR shutdown cooling subsystem(s) to OPERABLE status.  <u>AND</u>	Immediately   (continued)

RHR Shutdown Cooling System—Hot Shutdown  
3.4.7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2      Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour
	<u>AND</u>	
	A.3      -----NOTE----- Only applicable if both RHR shutdown cooling subsystems are inoperable. -----	
	Verify reactor coolant circulation by an alternate method.	1 hour
	<u>AND</u>	<u>AND</u> Once per 12 hours thereafter
	A.4      -----NOTE----- Only applicable if both RHR shutdown cooling subsystems are inoperable. -----	
	Monitor reactor coolant temperature and pressure.	Once per hour
	<u>AND</u>	
	A.5      Be in MODE 4.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.7.1 -----NOTE-----            Not required to be met until 2 hours after            reactor steam dome pressure is less            than the RHR cut-in permissive pressure.            -----            Verify each RHR shutdown cooling subsystem            manual and power operated valve in the flow            path, that is not locked, sealed or            otherwise secured in position, is in the            correct position or can be aligned to the            correct position.</p>	<p>12 hours</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 Residual Heat Removal (RHR) Shutdown Cooling System—Cold Shutdown

LCO 3.4.8 Two RHR shutdown cooling subsystems shall be OPERABLE.

-----NOTES-----

1. Not required to be met during hydrostatic testing.
  2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.
- 

APPLICABILITY: MODE 4.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each RHR shutdown cooling subsystem.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour
	<u>AND</u>	<u>AND</u> Once per 24 hours thereafter  (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.2      -----NOTE-----  Only applicable if  both RHR shutdown  cooling subsystems  are inoperable.  -----</p> <p>Verify reactor  coolant circulating  by an alternate  method.</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per  12 hours  thereafter</p>
	<p><u>AND</u></p> <p>A.3      -----NOTE-----  Only applicable if  both RHR shutdown  cooling subsystems  are inoperable.  -----</p> <p>Monitor reactor  coolant temperature  and pressure.</p>	<p>Once per hour</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.8.1      Verify each RHR shutdown cooling subsystem manual and power operated valve in the flow path, that is not locked, sealed or otherwise secured in position, is in the correct position or can be aligned to the correct position.</p>	<p>12 hours</p>

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.9 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.9 RCS pressure, RCS temperature, RCS heatup and cooldown rates, and the recirculation pump starting temperature requirements shall be maintained within limits.

APPLICABILITY: At all times.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Required Action A.2 shall be completed if this Condition is entered. -----</p> <p>Requirements of the LCO not met in MODE 1, 2, or 3.</p>	A.1 Restore parameter(s) to within limits.	30 minutes
	<p><u>AND</u></p> <p>A.2 Determine RCS is acceptable for continued operation.</p>	72 hours
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	B.1 Be in MODE 3.	12 hours
	<p><u>AND</u></p> <p>B.2 Be in MODE 4.</p>	36 hours

(continued)

## ACTIONS

ACTIONS		
CONDITION	REQUIRED ACTION	COMPLETION TIME
C. -----NOTE----- Required Action C.2 shall be completed if this Condition is entered. -----  Requirements of the LCO not met in other than MODES 1, 2, and 3.	C.1      Initiate action to restore parameter(s) to within limits.  <u>AND</u>  C.2      Determine RCS is acceptable for operation.	Immediately          Prior to entering MODE 2 or 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.9.1 -----NOTE----- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. -----</p> <p>Verify:</p> <ul style="list-style-type: none"> <li>a. RCS pressure and RCS temperature are within the applicable limits specified in Figures 3.4.9-1, 3.4.9-2, and 3.4.9-3;</li> <li>b. RCS heatup and cooldown rates are <math>\leq 100^{\circ}\text{F}</math> in any 1 hour period; and</li> <li>c. RCS temperature change during inservice leak and hydrostatic testing is <math>\leq 20^{\circ}\text{F}</math> in any 1 hour period when the RCS pressure and RCS temperature are being maintained within the limits of Figure 3.4.9-1.</li> </ul>	<p>30 minutes</p>
<p>SR 3.4.9.2 Verify RCS pressure and RCS temperature are within the applicable criticality limits specified in Figure 3.4.9-3.</p>	<p>Once within 15 minutes prior to control rod withdrawal for the purpose of achieving criticality</p>

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.9.3 -----NOTE----- Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup. -----</p> <p>Verify the difference between the bottom head coolant temperature and the reactor pressure vessel (RPV) coolant temperature is <math>\leq 145^{\circ}\text{F}</math>.</p>	<p>Once within 15 minutes prior to each startup of a recirculation pump</p>
<p>SR 3.4.9.4 -----NOTE----- Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup. -----</p> <p>Verify the difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is <math>\leq 50^{\circ}\text{F}</math>.</p>	<p>Once within 15 minutes prior to each startup of a recirculation pump</p>
<p>SR 3.4.9.5 -----NOTE----- Only required to be performed when tensioning the reactor vessel head bolting studs. -----</p> <p>Verify reactor vessel flange and head flange temperatures are <math>\geq 83^{\circ}\text{F}</math>.</p>	<p>30 minutes</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.9.6 -----NOTE-----            Not required to be performed until            30 minutes after RCS temperature <math>\leq 93^{\circ}\text{F}</math> in            MODE 4.            -----            Verify reactor vessel flange and head            flange temperatures are <math>\geq 83^{\circ}\text{F}</math>.</p>	<p>30 minutes</p>
<p>SR 3.4.9.7 -----NOTE-----            Not required to be performed until 12 hours            after RCS temperature <math>\leq 113^{\circ}\text{F}</math> in MODE 4.            -----            Verify reactor vessel flange and head            flange temperatures are <math>\geq 83^{\circ}\text{F}</math>.</p>	<p>12 hours</p>

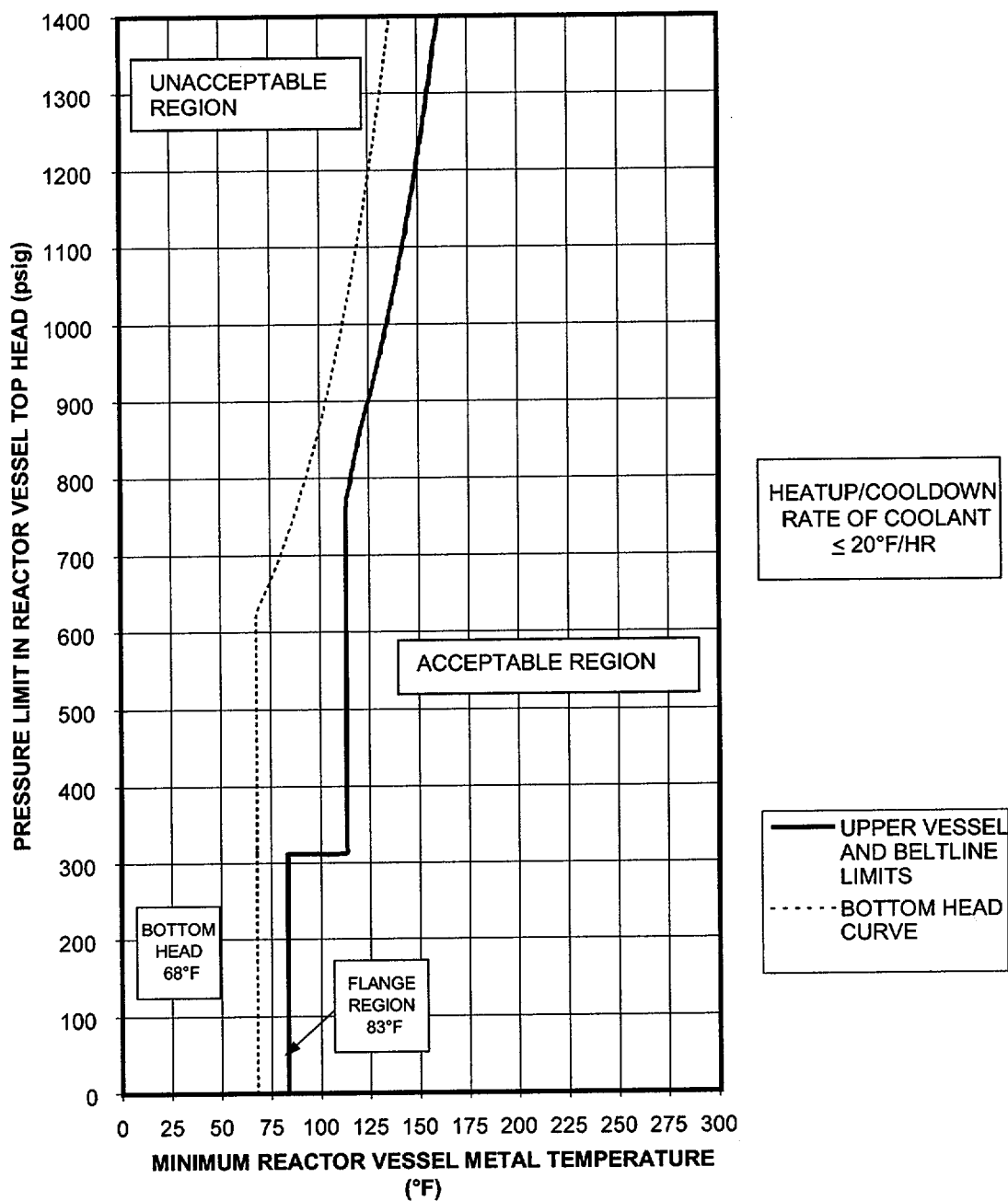


Figure 3.4.9-1 (Page 1 of 1)  
Non-Nuclear Inservice Leak and Hydrostatic Testing Curve  
(Valid to 32 EFY)

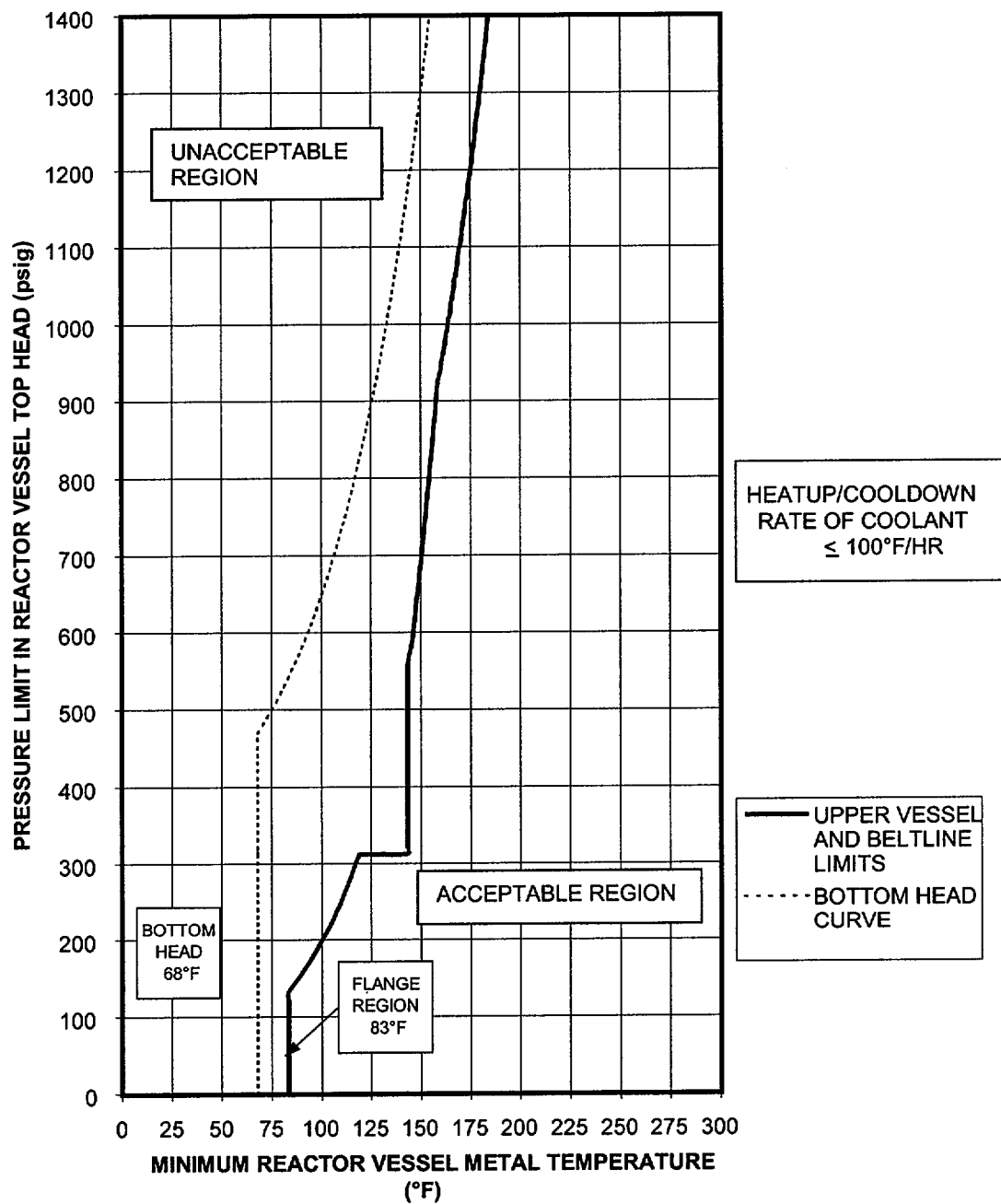


Figure 3.4.9-2 (Page 1 of 1)  
Non-Nuclear Heatup/Cooldown Curve  
(Valid to 32 EFY)

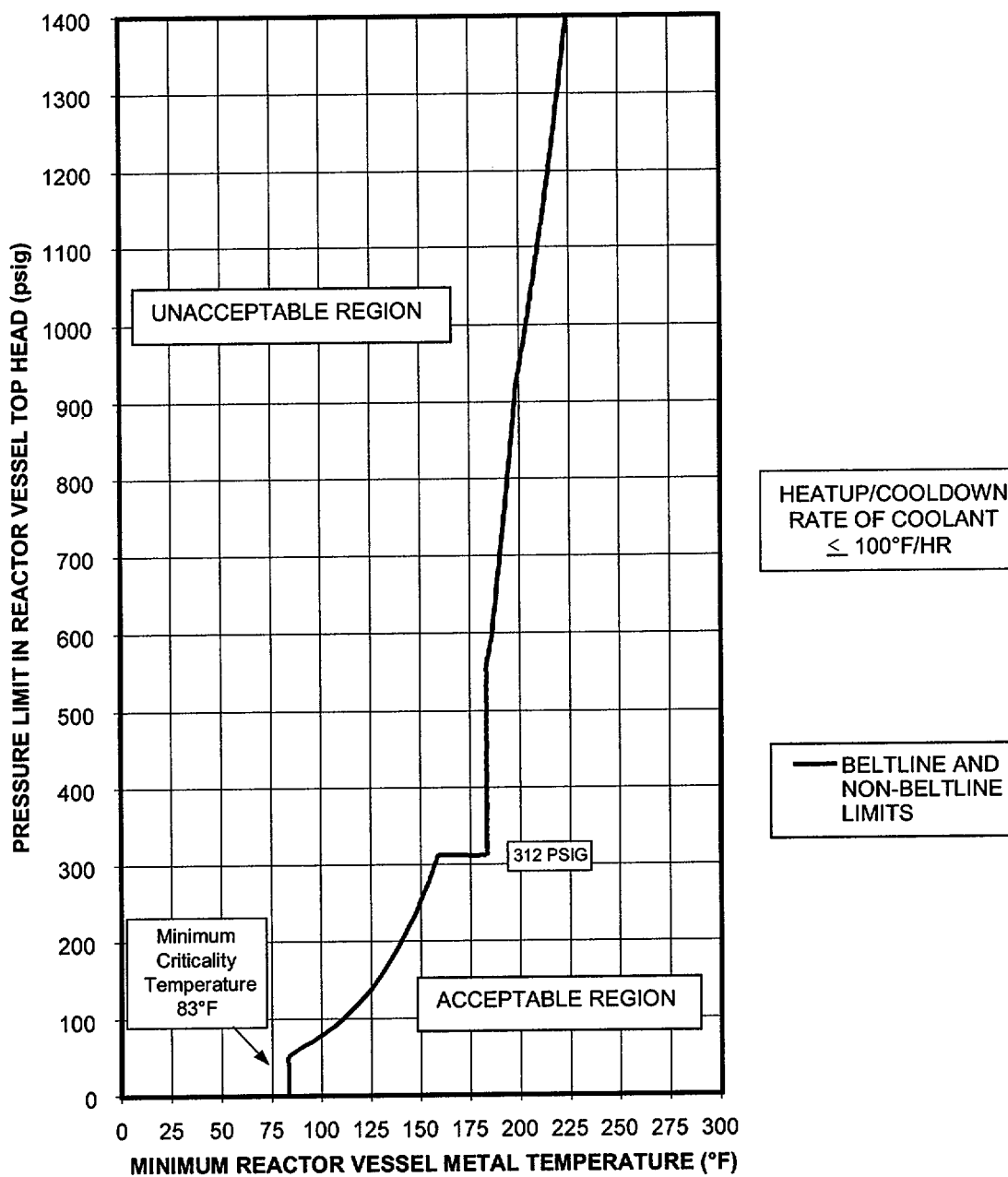


Figure 3.4.9-3 (Page 1 of 1)  
Critical Operations Curve  
(Valid to 32 EFY)

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.10 Reactor Steam Dome Pressure

LC0 3.4.10 The reactor steam dome pressure shall be  $\leq$  1005 psig.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor steam dome pressure not within limit.	A.1 Restore reactor steam dome pressure to within limit.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.10.1 Verify reactor steam dome pressure is $\leq$ 1005 psig.	12 hours

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

#### 3.5.1 ECCS - Operating

LC0 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of four relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,  
MODES 2 and 3, except high pressure coolant injection (HPCI)  
and ADS valves are not required to be OPERABLE with  
reactor steam dome pressure  $\leq 150$  psig.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Low Pressure Coolant Injection (LPCI) pump inoperable.	A.1 Restore LPCI pump to OPERABLE status.	30 days
B. One LPCI subsystem inoperable for reasons other than Condition A.  <u>OR</u>  One Core Spray subsystem inoperable.	B.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days
C. One LPCI pump in each subsystem inoperable.	C.1 Restore one LPCI pump to OPERABLE status.	7 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two LPCI subsystems inoperable for reasons other than Condition C.	D.1 Restore one LPCI subsystem to OPERABLE status.	72 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3.	12 hours
	<u>AND</u> E.2 Be in MODE 4.	36 hours
F. HPCI System inoperable.	F.1 Verify by administrative means RCIC System is OPERABLE.	Immediately
	<u>AND</u> F.2 Restore HPCI System to OPERABLE status.	14 days
G. HPCI System inoperable.  <u>AND</u> One low pressure ECCS injection/spray subsystem is inoperable or Condition C entered.	G.1 Restore HPCI System to OPERABLE status.	72 hours
	<u>OR</u> G.2 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	72 hours
H. One required ADS valve inoperable.	H.1 Restore ADS valve to OPERABLE status.	14 days

(continued)



ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. Required Action and associated Completion Time of Condition F, G, or H not met.</p> <p><u>OR</u></p> <p>Two or more required ADS valves inoperable.</p>	<p>I.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>I.2 Reduce reactor steam dome pressure to <math>\leq 150</math> psig.</p>	<p>12 hours</p> <p>36 hours</p>
<p>J. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition C or D.</p> <p><u>OR</u></p> <p>HPCI System and one or more required ADS valves inoperable.</p> <p><u>OR</u></p> <p>One or more low pressure ECCS injection/spray subsystems inoperable and one or more required ADS valves inoperable.</p>	<p>J.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.1.1    Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.1.2    -----NOTE----- Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) cut-in permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. ----- Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.1.3    Verify correct breaker alignment to the LPCI swing bus.	31 days
SR 3.5.1.4    Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE					FREQUENCY
SR 3.5.1.5	Verify the following ECCS pumps develop the specified flow rate against a test line pressure corresponding to the specified reactor pressure.				In accordance with the Inservice Testing Program
			TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF		
	<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>NO. OF PUMPS</u>	<u>PRESSURE OF</u>	
	Core				
	Spray	≥ 4500 gpm	1	≥ 90 psig	
	LPCI	≥ 9000 gpm	2	≥ 20 psig	
SR 3.5.1.6	-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----  Verify, with reactor pressure ≤ 1005 and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.				In accordance with the Inservice Testing Program
SR 3.5.1.7	-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----  Verify, with reactor pressure ≤ 180 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.				24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.8	<p>-----NOTE-----  Vessel injection/spray may be excluded.  -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>	24 months
SR 3.5.1.9	<p>-----NOTE-----  Valve actuation may be excluded.  -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	24 months
SR 3.5.1.10	<p>-----NOTE-----  Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.  -----</p> <p>Verify each required ADS valve opens when manually actuated.</p>	24 months
SR 3.5.1.11	Verify automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source.	24 months

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

#### 3.5.2 ECCS – Shutdown

LCO 3.5.2 Two low pressure ECCS injection/spray subsystems shall be OPERABLE.

APPLICABILITY: MODE 4,  
MODE 5, except with the spent fuel storage pool gates removed and water level  $\geq$  23 ft over the top of the reactor pressure vessel flange.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
C. Two required ECCS injection/spray subsystems inoperable.	C.1 Initiate action to suspend OPDRVs.  <u>AND</u> C.2 Restore one required ECCS injection/spray subsystem to OPERABLE status.	Immediately  4 hours

(continued)

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.2.1 Verify, for each required ECCS injection/spray subsystem, the:</p> <p>a. Suppression pool water level is <math>\geq 8.5</math> ft; or</p> <p>b. -----NOTE----- Only one required ECCS injection/spray subsystem may take credit for this option during OPDRVs. -----</p> <p>Contaminated condensate storage tank(s) water volume is <math>\geq 140,000</math> available gallons.</p>	12 hours
<p>SR 3.5.2.2 Verify, for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.</p>	31 days
<p>SR 3.5.2.3 -----NOTE----- One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable. -----</p> <p>Verify each required ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE					FREQUENCY
SR 3.5.2.4	Verify each required ECCS pump develops the specified flow rate against a test line pressure corresponding to the specified reactor pressure.				In accordance with the Inservice Testing Program
			TEST LINE PRESSURE		
		NO. OF	CORRESPONDING		
		PUMPS	TO A REACTOR		
	<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>PRESSURE OF</u>		
	CS	≥ 4500 gpm	1	≥ 90 psig	
	LPCI	≥ 4500 gpm	1	≥ 20 psig	
SR 3.5.2.5	-----NOTE----- Vessel injection/spray may be excluded. -----  Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.				24 months



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

3.5.3 RCIC System

LC0 3.5.3 The RCIC System shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCIC System inoperable.	A.1 Verify by administrative means High Pressure Coolant Injection System is OPERABLE.	Immediately
	<u>AND</u> A.2 Restore RCIC System to OPERABLE status.	14 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Reduce reactor steam dome pressure to $\leq$ 150 psig.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.3.3	<p>-----NOTE-----            Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.            -----</p> <p>Verify, with reactor pressure <math>\leq 1005</math> psig and <math>\geq 920</math> psig, the RCIC pump can develop a flow rate <math>\geq 400</math> gpm against a system head corresponding to reactor pressure.</p>	92 days
SR 3.5.3.4	<p>-----NOTE-----            Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.            -----</p> <p>Verify, with reactor pressure <math>\leq 180</math> psig, the RCIC pump can develop a flow rate <math>\geq 400</math> gpm against a system head corresponding to reactor pressure.</p>	24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.3.5 -----NOTE----- Vessel injection may be excluded. -----</p> <p>Verify the RCIC System actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months</p>

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.1 Primary Containment

LCO 3.6.1.1 Primary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.1.1 Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2 Verify drywell-to-suppression chamber bypass leakage is $\leq 2\%$ of the acceptable $A/\sqrt{k}$ design value of 0.18 ft <sup>2</sup> at an initial differential pressure of $\geq 1.0$ psid.	24 months  <u>AND</u>  -----NOTE----- Only required after two consecutive tests fail and continues until two consecutive tests pass -----  12 months

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.2 Primary Containment Air Lock

LC0 3.6.1.2 The primary containment air lock shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

- NOTES-----
1. Entry and exit is permissible to perform repairs of the air lock components.
  2. Enter applicable Conditions and Required Actions of LC0 3.6.1.1, "Primary Containment," when air lock leakage results in exceeding overall containment leakage rate acceptance criteria.
- 

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 Lock the OPERABLE door closed.	24 hours
	<p><u>AND</u></p> <p>A.3 -----NOTE----- Air lock doors in high radiation areas or areas with limited access due to inerting may be verified locked closed by administrative means. -----</p> <p>Verify the OPERABLE door is locked closed.</p>	Once per 31 days
B. Primary containment air lock interlock mechanism inoperable.	<p>-----NOTES-----</p> <p>1. Required Actions B.1, B.2, and B.3 are not applicable if both doors in the air lock are inoperable and Condition C is entered.</p> <p>2. Entry into and exit from primary containment is permissible under the control of a dedicated individual.</p> <p>-----</p>	
	<p>B.1 Verify an OPERABLE door is closed.</p> <p><u>AND</u></p>	<p>1 hour</p> <p>(continued)</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Lock an OPERABLE door closed.	24 hours
	<p><u>AND</u></p> <p>B.3 -----NOTE----- Air lock doors in high radiation areas or areas with limited access due to inerting may be verified locked closed by administrative means. -----</p> <p>Verify an OPERABLE door is locked closed.</p>	Once per 31 days
C. Primary containment air lock inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate primary containment overall leakage rate per LCO 3.6.1.1, using current air lock test results.	Immediately
	<p><u>AND</u></p> <p>C.2 Verify a door is closed.</p>	1 hour
	<p><u>AND</u></p> <p>C.3 Restore air lock to OPERABLE status.</p>	24 hours

(continued)



ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	D.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.2.1	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test.</li> <li>2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1.1.</li> </ol> <p>-----</p> <p>Perform required primary containment air lock leakage rate testing in accordance with the Primary Containment Leakage Rate Testing Program.</p>	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.2.2	Verify only one door in the primary containment air lock can be opened at a time.	24 months

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

#### ACTIONS

- NOTES-----
1. 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 systems made inoperable by PCIVs.
  4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable to penetration flow paths with two or more PCIVs. -----</p> <p>One or more penetration flow paths with one PCIV inoperable for reasons other than Condition D.</p>	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p><u>AND</u></p>	<p>4 hours except for main steam line</p> <p><u>AND</u></p> <p>8 hours for main steam line</p> <p>(continued)</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Isolation devices in high radiation areas may be verified by use of administrative means.</li> <li>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.</li> </ol> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days for isolation devices outside primary containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 2 or 3 from MODE 4, if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days, for isolation devices inside primary containment</p>

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Only applicable to penetration flow paths with two or more PCIVs. -----</p> <p>One or more penetration flow paths with two or more PCIVs inoperable for reasons other than Condition D.</p>	<p>B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>1 hour</p>
<p>C. -----NOTE----- Only applicable to penetration flow paths with only one PCIV. -----</p> <p>One or more penetration flow paths with one PCIV inoperable for reasons other than Condition D.</p>	<p>C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p> <p><u>AND</u></p>	<p>4 hours except for excess flow check valves (EFCVs) and penetrations with a closed system</p> <p><u>AND</u></p> <p>72 hours for EFCVs and penetrations with a closed system</p> <p>(continued)</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	<p>C.2 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Isolation devices in high radiation areas may be verified by use of administrative means.</li> <li>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.</li> </ol> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	Once per 31 days
D. MSIV leakage rate not within limit.	D.1 Restore leakage rate to within limit.	8 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met in MODE 1, 2, or 3.	<p>E.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>E.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.	F.1 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
	<u>OR</u> F.2 Initiate action to restore valve(s) to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.3.1 -----NOTE-----            Not required to be met when the 18 inch primary containment vent and purge valves are open for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open, provided the drywell vent and purge valves and their associated suppression chamber vent and purge valves are not open simultaneously.            -----            Verify each 18 inch primary containment vent and purge valve, except for the torus purge valve, is closed.</p>	31 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.3.2 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.</li> <li>2. Not required to be met for PCIVs that are open under administrative controls.</li> </ol> <p>-----</p> <p>Verify each primary containment isolation manual valve and blind flange that is located outside primary containment and not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed.</p>	<p>31 days</p>
<p>SR 3.6.1.3.3 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.</li> <li>2. Not required to be met for PCIVs that are open under administrative controls.</li> </ol> <p>-----</p> <p>Verify each primary containment manual isolation valve and blind flange that is located inside primary containment and not locked sealed, or otherwise secured and is required to be closed during accident conditions is closed.</p>	<p>Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.4	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	31 days
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq 3$ seconds and $\leq 5$ seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to the isolation position on an actual or simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.3.10    Verify the combined leakage rate for all MSIV leakage paths is $\leq$ 46 scfh when tested at $\geq$ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.4 Drywell Pressure

LC0 3.6.1.4 Drywell pressure shall be  $\leq$  1.5 psig.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell pressure not within limit.	A.1 Restore drywell pressure to within limit.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.4.1 Verify drywell pressure is within limit.	12 hours

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.5 Drywell Air Temperature

LC0 3.6.1.5 Drywell average air temperature shall be  $\leq 150^{\circ}\text{F}$ .

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell average air temperature not within limit.	A.1 Restore drywell average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.5.1 Verify drywell average air temperature is within limit.	24 hours

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.6 Low Set Relief Valves

LC0 3.6.1.6 The low set relief function of two relief valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low set relief valve inoperable.	A.1 Restore low set relief valve to OPERABLE status.	14 days
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u>  Two low set relief valves inoperable.	B.1 Be in MODE 3.  <u>AND</u>  B.2 Be in MODE 4.	12 hours   36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.6.1 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each low set relief valve opens when manually actuated.</p>	24 months
<p>SR 3.6.1.6.2 -----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify each low set relief valve actuates on an actual or simulated automatic initiation signal.</p>	24 months

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.7 Reactor Building-to-Suppression Chamber Vacuum Breakers

LC0 3.6.1.7 Each reactor building-to-suppression chamber vacuum breaker shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more lines with one reactor building-to-suppression chamber vacuum breaker not closed.	A.1 Close the open vacuum breaker.	7 days
B. One or more lines with two reactor building-to-suppression chamber vacuum breakers not closed.	B.1 Close one open vacuum breaker.	1 hour
C. One line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	C.1 Restore the vacuum breaker(s) to OPERABLE status.	7 days

(continued)

Reactor Building-to-Suppression Chamber Vacuum Breakers  
3.6.1.7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	D.1 Restore all vacuum breakers in one line to OPERABLE status.	1 hour
E. Required Action and Associated Completion Time not met.	E.1 Be in MODE 3.	12 hours
	<u>AND</u> E.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.7.1 -----NOTES----- 1. Not required to be met for vacuum breakers that are open during Surveillances.  2. Not required to be met for vacuum breakers open when performing their intended function. -----  Verify each vacuum breaker is closed.	14 days
SR 3.6.1.7.2 Perform a functional test of each vacuum breaker.	92 days

(continued)

Reactor Building-to-Suppression Chamber Vacuum Breakers  
3.6.1.7

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.3	Verify the opening setpoint of each vacuum breaker is $\leq 0.5$ psid.	24 months



### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.8 Suppression Chamber-to-Drywell Vacuum Breakers

LC0 3.6.1.8 Nine suppression chamber-to-drywell vacuum breakers shall be OPERABLE for opening.

AND

Twelve suppression chamber-to-drywell vacuum breakers shall be closed.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required suppression chamber-to-drywell vacuum breaker inoperable for opening.	A.1 Restore one vacuum breaker to OPERABLE status.	72 hours
B. One suppression chamber-to-drywell vacuum breaker not closed.	B.1 Close the open vacuum breaker.	4 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

Suppression Chamber-to-Drywell Vacuum Breakers  
3.6.1.8

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.8.1      -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Not required to be met for vacuum breakers that are open during Surveillances.</li> <li>2. Not required to be met for vacuum breakers open when performing their intended function.</li> </ol> <p>-----</p> <p>Verify each vacuum breaker is closed.</p>	<p>14 days</p>
<p>SR 3.6.1.8.2      Perform a functional test of each required vacuum breaker.</p>	<p>31 days</p> <p><u>AND</u></p> <p>Within 12 hours after any discharge of steam to the suppression chamber from the relief valves</p>
<p>SR 3.6.1.8.3      Verify the opening setpoint of each required vacuum breaker is <math>\leq 0.5</math> psid.</p>	<p>24 months</p>

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.2.1 Suppression Pool Average Temperature

LCO 3.6.2.1 Suppression pool average temperature shall be:

- a.  $\leq 95^{\circ}\text{F}$  with THERMAL POWER  $> 1\%$  RTP and no testing that adds heat to the suppression pool is being performed;
- b.  $\leq 105^{\circ}\text{F}$  with THERMAL POWER  $> 1\%$  RTP and testing that adds heat to the suppression pool is being performed;  
and
- c.  $\leq 110^{\circ}\text{F}$  with THERMAL POWER  $\leq 1\%$  RTP.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool average temperature $> 95^{\circ}\text{F}$ but $\leq 110^{\circ}\text{F}$ .  <u>AND</u>  THERMAL POWER $> 1\%$ RTP.  <u>AND</u>  Not performing testing that adds heat to the suppression pool.	A.1 Verify suppression pool average temperature $\leq 110^{\circ}\text{F}$ .	Once per hour
	<u>AND</u>  A.2 Restore suppression pool average temperature to $\leq 95^{\circ}\text{F}$ .	24 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Reduce THERMAL POWER to $\leq 1\%$ RTP.	12 hours

(continued)

Suppression Pool Average Temperature  
3.6.2.1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Suppression pool average temperature &gt; 105°F.</p> <p><u>AND</u></p> <p>THERMAL POWER &gt; 1% RTP.</p> <p><u>AND</u></p> <p>Performing testing that adds heat to the suppression pool.</p>	<p>C.1 Suspend all testing that adds heat to the suppression pool.</p>	<p>Immediately</p>
<p>D. Suppression pool average temperature &gt; 110°F but ≤ 120°F.</p>	<p>D.1 Place the reactor mode switch in the shutdown position.</p> <p><u>AND</u></p> <p>D.2 Verify suppression pool average temperature ≤ 120°F.</p> <p><u>AND</u></p> <p>D.3 Be in MODE 4.</p>	<p>Immediately</p> <p>Once per 30 minutes</p> <p>36 hours</p>
<p>E. Suppression pool average temperature &gt; 120°F.</p>	<p>E.1 Depressurize the reactor vessel to &lt; 150 psig.</p> <p><u>AND</u></p> <p>E.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

Suppression Pool Average Temperature  
3.6.2.1

SURVEILLANCE REQUIREMENTS

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

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.2.2 Suppression Pool Water Level

LC0 3.6.2.2 Suppression pool water level shall be  $\geq 14$  ft 1 inch and  $\leq 14$  ft 5 inches.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool water level not within limits.	A.1 Restore suppression pool water level to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.2.2.1 Verify suppression pool water level is within limits.	24 hours

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling

LC0 3.6.2.3 Two RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days
B. Two RHR suppression pool cooling subsystems inoperable.	B.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual and power operated valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.2.3.2	Verify each required RHR pump develops a flow rate $\geq$ 5000 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the Inservice Testing Program



### 3.6 CONTAINMENT SYSTEMS

#### 3.6.2.4 Residual Heat Removal (RHR) Suppression Pool Spray

LC0 3.6.2.4 Two RHR suppression pool spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool spray subsystem inoperable.	A.1 Restore RHR suppression pool spray subsystem to OPERABLE status.	7 days
B. Two RHR suppression pool spray subsystems inoperable.	B.1 Restore one RHR suppression pool spray subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify each RHR suppression pool spray subsystem manual and power operated valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.2.4.2	Verify each suppression pool spray nozzle is unobstructed.	10 years

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.2.5 Drywell-to-Suppression Chamber Differential Pressure

LC0 3.6.2.5 The drywell pressure shall be maintained  $\geq 1.0$  psid above the pressure of the suppression chamber.

-----NOTE-----  
Not required to be met for up to 4 hours during performance of required Surveillances.  
-----

APPLICABILITY: MODE 1 during the time period:

- a. From 24 hours after THERMAL POWER is  $> 15\%$  RTP following startup, to
- b. 24 hours prior to reducing THERMAL POWER to  $< 15\%$  RTP prior to the next scheduled reactor shutdown.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell-to-suppression chamber differential pressure not within limit.	A.1 Restore differential pressure to within limit.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to $\leq 15\%$ RTP.	8 hours

Drywell-to-Suppression Chamber Differential Pressure  
3.6.2.5

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.5.1	Verify drywell-to-suppression chamber differential pressure is within limit.	12 hours

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.3.1 Primary Containment Oxygen Concentration

LC0 3.6.3.1 The primary containment oxygen concentration shall be  
< 4.0 volume percent.

APPLICABILITY: MODE 1 during the time period:

- a. From 24 hours after THERMAL POWER is > 15% RTP following startup, to
- b. 24 hours prior to reducing THERMAL POWER to < 15% RTP prior to the next scheduled reactor shutdown.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment oxygen concentration not within limit.	A.1 Restore oxygen concentration to within limit.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to $\leq$ 15% RTP.	8 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.1.1 Verify primary containment oxygen concentration is within limits.	7 days

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the  
secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor  
vessel (OPDRVs).

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1 Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours
C. Secondary containment inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	C.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of irradiated fuel assemblies in the secondary containment.  <u>AND</u>	Immediately          (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> C.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.1.1 Verify secondary containment vacuum is $\geq 0.10$ inch of vacuum water gauge.	24 hours
SR 3.6.4.1.2 Verify one secondary containment access door in each access opening is closed.	31 days
SR 3.6.4.1.3 Verify the secondary containment can be maintained $\geq 0.25$ inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate $\leq 4000$ cfm.	24 months on a STAGGERED TEST BASIS for each SGT subsystem
SR 3.6.4.1.4 Verify all secondary containment equipment hatches are closed and sealed.	24 months

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LC0 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the  
secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor  
vessel (OPDRVs).

#### ACTIONS

- NOTES-----
1. 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 systems made inoperable by SCIVs.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.  <u>AND</u>	8 hours          (continued)



ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Isolation devices in high radiation areas may be verified by use of administrative means.</li> <li>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.</li> </ol> <p>-----</p> <p>Verify the affected penetration flow path is isolated.</p>	Once per 31 days
<p>B. -----NOTE-----</p> <p>Only applicable to penetration flow paths with two isolation valves.</p> <p>-----</p> <p>One or more penetration flow paths with two SCIVs inoperable.</p>	<p>B.1</p> <p>Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	4 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours
D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	D.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u> D.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> D.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.</li> <li>2. Not required to be met for SCIVs that are open under administrative controls.</li> </ol> <p>-----</p> <p>Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed.</p>	31 days
SR 3.6.4.2.2	Verify the isolation time of each power operated, automatic SCIV is within limits.	92 days
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	24 months

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the  
secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor  
vessel (OPDRVs).

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours
C. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>C.1 Place OPERABLE SGT subsystem in operation.</p> <p><u>OR</u></p>	<p>Immediately</p> <p>(continued)</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u>	
	C.2.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	C.2.3 Initiate action to suspend OPDRVs.	Immediately
D. Two SGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Restore one SGT subsystem to OPERABLE status.	1 hour
E. Required Action and associated Completion Time of Condition D not met.	E.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	E.2 Be in MODE 4.	36 hours
F. Two SGT subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	F.1 -----NOTE----- LCO 3.0.3 is not applicable. -----  Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u>	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. (continued)	F.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> F.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.3.1 Operate each SGT subsystem for $\geq 10$ continuous hours with heaters operating.	31 days
SR 3.6.4.3.2 Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3 Verify each SGT subsystem actuates on an actual or simulated initiation signal.	24 months

### 3.7 PLANT SYSTEMS

#### 3.7.1 Residual Heat Removal Service Water (RHRSW) System

LC0 3.7.1 Two RHRSW subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHRSW pump inoperable.	A.1 Restore RHRSW pump to OPERABLE status.	30 days
B. One RHRSW pump in each subsystem inoperable.	B.1 Restore one RHRSW pump to OPERABLE status.	7 days
C. One RHRSW subsystem inoperable for reasons other than Condition A.	C.1 -----NOTE----- Enter applicable Conditions and Required Actions of LC0 3.4.7, "Residual Heat Removal (RHR) Shutdown Cooling System-Hot Shutdown," for RHR shutdown cooling subsystem made inoperable by RHRSW System. ----- Restore RHRSW subsystem to OPERABLE status.	7 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Both RHRSW subsystems inoperable for reasons other than Condition B.	D.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.4.7 for RHR shutdown cooling subsystems made inoperable by RHRSW System. ----- Restore one RHRSW subsystem to OPERABLE status.	8 hours
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.1.1 Verify each RHRSW manual and power operated valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	31 days



### 3.7 PLANT SYSTEMS

#### 3.7.2 Diesel Generator Cooling Water (DGCW) System

LC0 3.7.2 The following DGCW subsystems shall be OPERABLE:

- a. Two DGCW subsystems; and
- b. The opposite unit DGCW subsystem capable of supporting its associated diesel generator (DG).

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each DGCW subsystem.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGCW subsystems inoperable and not capable of supporting its associated DG.	A.1 Declare associated DG inoperable.	Immediately
B. One or more unit DGCW subsystems inoperable and not capable of supporting the ECCS room emergency coolers.	B.1 Align a DGCW subsystem to the ECCS room emergency coolers.	1 hour
	<u>OR</u> B.2 Declare associated ECCS inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify each DGCW subsystem manual valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.2.2	Verify each DGCW pump starts automatically on an actual or simulated initiation signal.	24 months

### 3.7 PLANT SYSTEMS

#### 3.7.3 Ultimate Heat Sink (UHS)

LC0 3.7.3 The UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. UHS inoperable.	A.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	A.2 Be in MODE 4.	36 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.3.1 Verify the water level in the intake bay is $\geq$ 568 ft mean sea level.	24 hours
SR 3.7.3.2 Verify the average water temperature of UHS is $\leq$ 95°F.	24 hours

### 3.7 PLANT SYSTEMS

#### 3.7.4 Control Room Emergency Ventilation (CREV) System

LC0 3.7.4 The CREV System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the  
secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor  
vessel (OPDRVs).

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CREV System inoperable in MODE 1, 2, or 3.	A.1 Restore CREV System to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours  36 hours
C. CREV System inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	-----NOTE----- LC0 3.0.3 is not applicable. ----- C.1 Suspend movement of irradiated fuel assemblies in the secondary containment.  <u>AND</u>	Immediately   (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> C.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate the CREV System for $\geq 10$ continuous hours with the heaters operating.	31 days
SR 3.7.4.2	Perform required CREV filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify the CREV System isolation dampers close on an actual or simulated initiation signal.	24 months
SR 3.7.4.4	Verify the CREV System can maintain a positive pressure of $\geq 0.125$ inches water gauge relative to the adjacent areas during the pressurization mode of operation at a flow rate of $\leq 2000$ scfm.	24 months

Control Room Emergency Ventilation AC System  
3.7.5

3.7 PLANT SYSTEMS

3.7.5 Control Room Emergency Ventilation Air Conditioning (AC) System

LC0 3.7.5        The Control Room Emergency Ventilation AC System shall be OPERABLE.

APPLICABILITY:    MODES 1, 2, and 3,  
                       During movement of irradiated fuel assemblies in the  
    secondary containment,  
                       During CORE ALTERATIONS,  
                       During operations with a potential for draining the reactor  
    vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Control Room Emergency Ventilation AC System inoperable in MODE 1, 2, or 3.	A.1        Restore Control Room Emergency Ventilation AC System to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1        Be in MODE 3.	12 hours
	<u>AND</u> B.2        Be in MODE 4.	36 hours

(continued)

Control Room Emergency Ventilation AC System  
3.7.5

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Control Room Emergency Ventilation AC System inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	-----NOTE----- LCO 3.0.3 is not applicable. -----	
	C.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	
	C.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	C.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.5.1 Verify the Control Room Emergency Ventilation AC System has the capability to remove the assumed heat load.	24 months

### 3.7 PLANT SYSTEMS

#### 3.7.6 Main Condenser Offgas

LC0 3.7.6 The gross gamma activity rate of the noble gases measured prior to the offgas holdup line shall be  $\leq 251,100 \mu\text{Ci/second}$  after decay of 30 minutes.

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

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Gross gamma activity rate of the noble gases not within limit.	A.1 Restore gross gamma activity rate of the noble gases to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Isolate all main steam lines.	12 hours
	<u>OR</u>	
	B.2 Isolate SJAE.	12 hours
	<u>OR</u>	
	B.3.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	B.3.2 Be in MODE 4.	36 hours



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.6.1 -----NOTE-----            Not required to be performed until 31 days            after any main steam line not isolated and            SJAЕ in operation.            -----            Verify the gross gamma activity rate of the            noble gases is <math>\leq 251,100 \mu\text{Ci/second}</math> after            decay of 30 minutes.</p>	<p>31 days  <u>AND</u>            Once within            4 hours after a  <math>\geq 50\%</math> increase            in the nominal            steady state            fission gas            release after            factoring out            increases due            to changes in            THERMAL POWER            level</p>

### 3.7 PLANT SYSTEMS

#### 3.7.7 The Main Turbine Bypass System

LCO 3.7.7 The Main Turbine Bypass System shall be OPERABLE.

OR

LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for an inoperable Main Turbine Bypass System, as specified in the COLR, are made applicable.

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

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.7.1 Verify one complete cycle of each main turbine bypass valve.	92 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.2	Perform a system functional test.	24 months
SR 3.7.7.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	24 months

### 3.7 PLANT SYSTEMS

#### 3.7.8 Spent Fuel Storage Pool Water Level

LCO 3.7.8      The spent fuel storage pool water level shall be  $\geq 19$  ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.

APPLICABILITY:    During movement of irradiated fuel assemblies in the spent fuel storage pool,  
                          During movement of new fuel assemblies in the spent fuel storage pool with irradiated fuel assemblies seated in the spent fuel storage pool.

#### ACTIONS

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

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.8.1      Verify the spent fuel storage pool water level is $\geq 19$ ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.	7 days

### 3.7 PLANT SYSTEMS

#### 3.7.9 Safe Shutdown Makeup Pump (SSMP) System

LC0 3.7.9            The SSMP System shall be OPERABLE.

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

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SSMP System inoperable.	A.1      Restore SSMP System to OPERABLE status.	14 days
B. Required Action and associated Completion Time not met.	B.1      Be in MODE 3.	12 hours
	<u>AND</u> B.2      Reduce reactor steam dome pressure to $\leq$ 150 psig.	36 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.9.1      Verify each SSMP System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.2	Verify SSMP System pump develops a flow rate $\geq$ 400 gpm against a system head corresponding to reactor pressure > 1120 psig.	92 days

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.1 AC Sources – Operating

LC0 3.8.1 The following AC electrical power sources shall be OPERABLE:

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System;
- b. Two diesel generators (DGs);
- c. One qualified circuit between the offsite transmission network and the opposite unit's onsite Class 1E AC Electrical Power Distribution System capable of supporting the equipment required to be OPERABLE by LC0 3.6.4.3, "Standby Gas Treatment (SGT) System," LC0 3.7.4, "Control Room Emergency Ventilation (CREV) System" (Unit 2 only), and LC0 3.7.5, "Control Room Emergency Ventilation Air Conditioning (AC) System" (Unit 2 only); and
- d. The opposite unit's DG capable of supporting the equipment required to be OPERABLE by LC0 3.6.4.3, LC0 3.7.4 (Unit 2 only), and LC0 3.7.5 (Unit 2 only).

APPLICABILITY: MODES 1, 2, and 3.

-----NOTE-----  
The opposite unit's AC electrical power sources in LC0 3.8.1.c and d are not required to be OPERABLE when the associated required equipment (SGT subsystem, CREV System (Unit 2 only), and Control Room Emergency Ventilation AC System (Unit 2 only)) is inoperable.  
-----

ACTIONS

-----NOTE-----  
 LCO 3.0.4 is not applicable for the opposite unit's AC electrical power sources.  
 -----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit.	1 hour  <u>AND</u>  Once per 8 hours thereafter
	<u>AND</u> A.2 Declare required feature(s) with no offsite power available inoperable when the redundant required feature(s) are inoperable.	24 hours from discovery of no offsite power to one division concurrent with inoperability of redundant required feature(s)
	<u>AND</u> A.3 Restore required offsite circuit to OPERABLE status.	7 days  <u>AND</u>  14 days from discovery of failure to meet LCO 3.8.1.a or b

(continued)



ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required DG inoperable.	B.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit(s).	1 hour  <u>AND</u>  Once per 8 hours thereafter
	<u>AND</u>	
	B.2 Declare required feature(s), supported by the inoperable DG, inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	B.3.1 Determine OPERABLE DG(s) are not inoperable due to common cause failure.	24 hours
	<u>OR</u>	
	B.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s).	24 hours
	<u>AND</u>	
	B.4 Restore required DG to OPERABLE status.	7 days  <u>AND</u>  14 days from discovery of failure to meet LCO 3.8.1.a or b

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two required offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	<u>AND</u> C.2 Restore one required offsite circuit to OPERABLE status.	24 hours
D. One required offsite circuit inoperable.  <u>AND</u>  One required DG inoperable.	-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems – Operating," when Condition D is entered with no AC power source to any division. -----	
	D.1 Restore required offsite circuit to OPERABLE status.	12 hours
	<u>OR</u> D.2 Restore required DG to OPERABLE status.	12 hours
E. Two required DGs inoperable.	E.1 Restore one required DG to OPERABLE status.	2 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3.	12 hours
	<u>AND</u> F.2 Be in MODE 4.	36 hours
G. Three or more required AC sources inoperable.	G.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTES-----
1. SR 3.8.1.1 through SR 3.8.1.20 are applicable only to the given unit's AC electrical power sources.
  2. SR 3.8.1.21 is applicable to the opposite unit's AC electrical power sources.
- 

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	7 days
SR 3.8.1.2	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading.</li> <li>2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.8 must be met.</li> <li>3. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units.</li> </ol> <p>-----</p> <p>Verify each DG starts from standby conditions and achieves steady state voltage <math>\geq 3952</math> V and <math>\leq 4368</math> V and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz.</p>	31 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. DG loadings may include gradual loading as recommended by the manufacturer.</li> <li>2. Momentary transients outside the load range do not invalidate this test.</li> <li>3. This Surveillance shall be conducted on only one DG at a time.</li> <li>4. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.8.</li> <li>5. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units.</li> </ol> <p>-----</p> <p>Verify each DG is synchronized and loaded and operates for <math>\geq 60</math> minutes at a load <math>\geq 2340</math> kW and <math>\leq 2600</math> kW.</p>	31 days
<p>SR 3.8.1.4 Verify each day tank contains <math>\geq 205</math> gal of fuel oil and each bulk fuel storage tank contains <math>\geq 10,000</math> gal of fuel oil.</p>	31 days
<p>SR 3.8.1.5 Remove accumulated water from each day tank.</p>	31 days
<p>SR 3.8.1.6 Verify each fuel oil transfer pump operates to automatically transfer fuel oil from the storage tank to the day tank.</p>	31 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	Check for and remove accumulated water from each bulk storage tank.	92 days
SR 3.8.1.8	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. All DG starts may be preceded by an engine prelube period.</li> <li>2. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units.</li> </ol> <p>-----</p> <p>Verify each DG starts from standby condition and achieves:</p> <ol style="list-style-type: none"> <li>a. In <math>\leq 10</math> seconds, voltage <math>\geq 3952</math> V and frequency <math>\geq 58.8</math> Hz; and</li> <li>b. Steady state voltage <math>\geq 3952</math> V and <math>\leq 4368</math> V and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz.</li> </ol>	184 days
SR 3.8.1.9	Verify manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.10 -----NOTE-----  A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units.  -----</p> <p>Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and:</p> <ol style="list-style-type: none"> <li>Following load rejection, the frequency is <math>\leq 66.73</math> Hz;</li> <li>Within 3 seconds following load rejection, the voltage is <math>\geq 3952</math> V and <math>\leq 4368</math> V; and</li> <li>Within 4 seconds following load rejection, the frequency is <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz.</li> </ol>	<p>24 months</p>
<p>SR 3.8.1.11 -----NOTES-----  1. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units.  2. Momentary transients outside the voltage limit do not invalidate this test.  -----</p> <p>Verify each DG does not trip and voltage is maintained <math>\leq 5000</math> V during and following a load rejection of <math>\geq 2340</math> kW and <math>\leq 2600</math> kW.</p>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.12 -----NOTE-----  All DG starts may be preceded by an engine  prelube period.  -----</p> <p>Verify on an actual or simulated loss of  offsite power signal:</p> <ul style="list-style-type: none"> <li>a. De-energization of emergency buses;</li> <li>b. Load shedding from emergency buses; and</li> <li>c. DG auto-starts from standby condition and: <ul style="list-style-type: none"> <li>1. energizes permanently connected loads in <math>\leq 10</math> seconds,</li> <li>2. maintains steady state voltage <math>\geq 3952</math> V and <math>\leq 4368</math> V,</li> <li>3. maintains steady state frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz, and</li> <li>4. supplies permanently connected loads for <math>\geq 5</math> minutes.</li> </ul> </li> </ul>	<p>24 months</p>

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.13 -----NOTE----- All DG starts may be preceded by an engine prelube period. -----</p> <p>Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and:</p> <ul style="list-style-type: none"> <li>a. In <math>\leq 10</math> seconds after auto-start, achieves voltage <math>\geq 3952</math> V and frequency <math>\geq 58.8</math> Hz;</li> <li>b. Achieves steady state voltage <math>\geq 3952</math> V and <math>\leq 4368</math> V and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz; and</li> <li>c. Operates for <math>\geq 5</math> minutes.</li> </ul>	<p>24 months</p>
<p>SR 3.8.1.14 Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ECCS initiation signal except:</p> <ul style="list-style-type: none"> <li>a. Engine overspeed; and</li> <li>b. Generator differential current.</li> </ul>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.15 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Momentary transients outside the load range and power factor limit do not invalidate this test.</li> <li>2. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable.</li> <li>3. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units.</li> </ol> <p>-----</p> <p>Verify each DG operating within the power factor limit operates for <math>\geq 24</math> hours:</p> <ol style="list-style-type: none"> <li>a. For <math>\geq 2</math> hours loaded <math>\geq 2730</math> kW and <math>\leq 2860</math> kW; and</li> <li>b. For the remaining hours of the test loaded <math>\geq 2340</math> kW and <math>\leq 2600</math> kW.</li> </ol>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.16 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated <math>\geq 2</math> hours loaded <math>\geq 2340</math> kW.</li> <li>Momentary transients below the load limit do not invalidate this test.</li> <li>2. All DG starts may be preceded by an engine prelube period.</li> <li>3. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units.</li> </ol> <p>-----</p> <p>Verify each DG starts and achieves:</p> <ol style="list-style-type: none"> <li>a. In <math>\leq 10</math> seconds, voltage <math>\geq 3952</math> and frequency <math>\geq 58.8</math> Hz; and</li> <li>b. Steady state voltage <math>\geq 3952</math> V and <math>\leq 4368</math> V and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz.</li> </ol>	<p>24 months</p>
<p>SR 3.8.1.17 Verify each DG:</p> <ol style="list-style-type: none"> <li>a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power;</li> <li>b. Transfers loads to offsite power source; and</li> <li>c. Returns to ready-to-load operation.</li> </ol>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.1.18    Verify interval between each sequenced load block is $\geq 90\%$ of the design interval for each load sequence time delay relay.	24 months
SR 3.8.1.19    -----NOTE----- All DG starts may be preceded by an engine prelube period. ----- Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal: a.    De-energization of emergency buses; b.    Load shedding from emergency buses; and c.    DG auto-starts from standby condition and: 1.    energizes permanently connected loads in $\leq 10$ seconds, 2.    energizes auto-connected emergency loads including through time delay relays, where applicable, 3.    maintains steady state voltage $\geq 3952$ V and $\leq 4368$ V, 4.    maintains steady state frequency $\geq 58.8$ Hz and $\leq 61.2$ Hz, and 5.    supplies permanently connected and auto-connected emergency loads for $\geq 5$ minutes.	24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.20 -----NOTE-----  All DG starts may be preceded by an engine  prelube period.  -----  Verify, when started simultaneously from  standby condition, each DG achieves, in  <math>\leq 10</math> seconds, voltage <math>\geq 3952</math> V and  frequency <math>\geq 58.8</math> Hz.</p>	<p>10 years</p>
<p>SR 3.8.1.21 -----NOTE-----  When the opposite unit is in MODE 4 or 5,  or moving irradiated fuel assemblies in  secondary containment, the following  opposite unit SRs are not required to be  performed: SR 3.8.1.3, SR 3.8.1.10 through  SR 3.8.1.12, and SR 3.8.1.14 through  SR 3.8.1.17.  -----  For required opposite unit AC electrical  power sources, the SRs of the opposite  unit's Specification 3.8.1, except  SR 3.8.1.9, SR 3.8.1.13, SR 3.8.1.18,  SR 3.8.1.19, and SR 3.8.1.20, are  applicable.</p>	<p>In accordance  with applicable  SRs</p>

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.2 AC Sources – Shutdown

LC0 3.8.2 The following AC electrical power sources shall be OPERABLE:

- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LC0 3.8.8, "Distribution Systems – Shutdown"; and
- b. One diesel generator (DG) capable of supplying one division of the onsite Class 1E AC electrical power distribution subsystem(s) required by LC0 3.8.8.

APPLICABILITY: MODES 4 and 5,  
During movement of irradiated fuel assemblies in the  
secondary containment.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	-----NOTE----- Enter applicable Condition and Required Actions of LCO 3.8.8, when any required division is de-energized as a result of Condition A. -----	
	A.1 Declare affected required feature(s), with no offsite power available, inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
	<u>AND</u>	
	A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately

(continued)



ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required DG inoperable.	B.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	B.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u>	
	B.3 Initiate action to suspend OPDRVs.	Immediately
	<u>AND</u>	
	B.4 Initiate action to restore required DG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.10 through SR 3.8.1.12, and SR 3.8.1.14 through SR 3.8.1.19.</li> <li>2. SR 3.8.1.13 and SR 3.8.1.19 are not required to be met when associated ECCS subsystem(s) are not required to be OPERABLE per LCO 3.5.2, "ECCS – Shutdown."</li> </ol> <p>-----</p> <p>For AC sources required to be OPERABLE the SRs of Specification 3.8.1, except SR 3.8.1.9, SR 3.8.1.20, and SR 3.8.1.21, are applicable.</p>	<p>In accordance with applicable SRs</p>

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.3 Diesel Fuel Oil and Starting Air

LC0 3.8.3 The stored diesel fuel oil and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with stored fuel oil total particulates not within limit.	A.1 Restore stored fuel oil total particulates to within limit.	7 days
B. One or more DGs with new fuel oil properties not within limits.	B.1 Restore stored fuel oil properties to within limits.	30 days
C. One or more DGs with required starting air receiver pressure < 230 psig and ≥ 175 psig.	C.1 Restore starting air receiver pressure to ≥ 230 psig.	48 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required Action and associated Completion Time of Condition A, B, or C not met.</p> <p><u>OR</u></p> <p>One or more DGs with stored diesel fuel oil or starting air subsystem not within limits for reasons other than Condition A, B, or C.</p>	<p>D.1 Declare associated DG inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.3.1 Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.</p>	<p>In accordance with the Diesel Fuel Oil Testing Program</p>
<p>SR 3.8.3.2 Verify each required DG air start receiver pressure is <math>\geq</math> 230 psig.</p>	<p>31 days</p>

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.4 DC Sources – Operating

- LC0 3.8.4      The following DC electrical power subsystems shall be OPERABLE:
- a.    Two 250 VDC electrical power subsystems;
  - b.    Division 1 and Division 2 125 VDC electrical power subsystems; and
  - c.    The opposite unit's 125 VDC electrical power subsystem capable of supporting equipment required to be OPERABLE by LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," LCO 3.7.4, "Control Room Emergency Ventilation (CREV) System" (Unit 2 only), LCO 3.7.5 "Control Room Emergency Ventilation Air Conditioning (AC) System" (Unit 2 only), and LCO 3.8.1, "AC Sources – Operating."

APPLICABILITY:    MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One 250 VDC electrical power subsystem inoperable.	A.1    Restore the 250 VDC electrical power subsystem to OPERABLE status.	72 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Only applicable if the opposite unit is in MODE 1, 2, or 3. -----</p> <p>Division 1 or 2 125 VDC battery inoperable as a result of maintenance or testing.</p>	<p>B.1 Place associated OPERABLE alternate 125 VDC electrical power subsystem in service.</p> <p><u>AND</u></p> <p>B.2 Restore Division 1 or 2 125 VDC battery to OPERABLE status.</p>	<p>72 hours</p> <p>Prior to exceeding 7 cumulative days per operating cycle of battery inoperability, on a per battery basis, as a result of maintenance or testing</p>
<p>C. -----NOTE----- Only applicable if the opposite unit is in MODE 1, 2, or 3. -----</p> <p>Division 1 or 2 125 VDC battery inoperable, due to the need to replace the battery, as determined by maintenance or testing.</p>	<p>C.1 Place associated OPERABLE alternate 125 VDC electrical power subsystem in service.</p> <p><u>AND</u></p> <p>C.2 Restore Division 1 or 2 125 VDC battery to OPERABLE status.</p>	<p>72 hours</p> <p>7 days</p>

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Division 1 or 2 125 VDC electrical power subsystem inoperable for reasons other than Conditions B or C.	D.1 Restore Division 1 or 2 125 VDC electrical power subsystem to OPERABLE status.	72 hours
	<u>OR</u> D.2 -----NOTE----- Only applicable if the opposite unit is not in MODE 1, 2, or 3. ----- Place associated OPERABLE alternate 125 VDC electrical power subsystem in service.	72 hours
E. Opposite unit 125 VDC electrical power subsystem inoperable.	E.1 Restore the opposite unit 125 VDC electrical power subsystem to OPERABLE status.	7 days
F. Required Action and associated Completion Time not met.	F.1 Be in MODE 3.	12 hours
	<u>AND</u> F.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	<p>Verify battery terminal voltage on float charge is:</p> <p>a. <math>\geq 260.4</math> VDC for each 250 VDC subsystem; and</p> <p>b. <math>\geq 125.9</math> VDC for each 125 VDC subsystem.</p>	7 days
SR 3.8.4.2	<p>Verify no visible corrosion at battery terminals and connectors.</p> <p><u>OR</u></p> <p>Verify battery connection resistance is <math>\leq 1.5E-4</math> ohm for inter-cell connections and <math>\leq 1.5E-4</math> ohm for terminal connections.</p>	92 days
SR 3.8.4.3	<p>Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.</p>	24 months
SR 3.8.4.4	<p>Remove visible corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.</p>	24 months
SR 3.8.4.5	<p>Verify battery connection resistance is <math>\leq 1.5E-4</math> ohm for inter-cell connections and <math>\leq 1.5E-4</math> ohm for terminal connections.</p>	24 months

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.6    Verify each required battery charger supplies:</p> <p>          a.    <math>\geq 250</math> amps at <math>\geq 250</math> VDC for <math>\geq 4</math> hours for the 250 VDC subsystems; and</p> <p>          b.    <math>\geq 200</math> amps at <math>\geq 125</math> VDC for <math>\geq 4</math> hours for the 125 VDC subsystems.</p>	<p>24 months</p>
<p>SR 3.8.4.7    -----NOTE-----</p> <p>                  The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7 provided the modified performance discharge test completely envelopes the service test.</p> <p>                  -----</p> <p>                  Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.</p>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.8      Verify battery capacity is <math>\geq</math> 80% of the manufacturer's rating for the 125 VDC batteries or the minimum acceptable battery capacity from the load profile for the 250 VDC batteries when subjected to a performance discharge test or a modified performance discharge test.</p>	<p>60 months</p> <p><u>AND</u></p> <p>12 months when battery shows degradation or has reached 85% of expected life with capacity &lt; 100% of manufacturer's rating</p> <p><u>AND</u></p> <p>24 months when battery has reached 85% of the expected life with capacity <math>\geq</math> 100% of manufacturer's rating</p>

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.5 DC Sources - Shutdown

LC0 3.8.5 One 250 VDC and one 125 VDC electrical power subsystem shall be OPERABLE to support the 250 VDC and one 125 VDC Class 1E electrical power distribution subsystems required by LC0 3.8.8, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 4 and 5,  
During movement of irradiated fuel assemblies in the  
secondary containment.

#### ACTIONS

-----NOTE-----  
LC0 3.0.3 is not applicable.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<p style="text-align: center;"><u>AND</u></p> A.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.5.1 -----NOTE-----  The following SRs are not required to be performed for the 250 VDC electrical power subsystem: SR 3.8.4.6, SR 3.8.4.7, and SR 3.8.4.8.  -----</p> <p>For DC electrical power subsystems required to be OPERABLE the following SRs are applicable:</p> <p>SR 3.8.4.1, SR 3.8.4.2, SR 3.8.4.3, SR 3.8.4.4, SR 3.8.4.5, SR 3.8.4.6, SR 3.8.4.7, and SR 3.8.4.8.</p>	In accordance with applicable SRs

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.6 Battery Cell Parameters

LC0 3.8.6 Battery cell parameters for the 250 V and 125 V station batteries shall be within limits.

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

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Table 3.8.6-1 Category A or B limits.	A.1 Verify pilot cell(s) electrolyte level and float voltage meet Table 3.8.6-1 Category C limits.	1 hour
	<u>AND</u>	
	A.2 Verify battery cell parameters meet Table 3.8.6-1 Category C limits.	24 hours
	<u>AND</u>	Once per 7 days thereafter
	<u>AND</u>	
	A.3 Restore battery cell parameters to Table 3.8.6-1 Category A and B limits.	31 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>One or more batteries with average electrolyte temperature of the representative cells not within limits.</p> <p><u>OR</u></p> <p>One or more batteries with one or more battery cell parameters not within Table 3.8.6-1 Category C limits.</p>	<p>B.1 Declare associated battery inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.6.1 Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	7 days
SR 3.8.6.2 Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	92 days  <u>AND</u>  Once within 7 days after battery discharge < 105 V for 125 V batteries and < 210 V for 250 V batteries  <u>AND</u>  Once within 7 days after battery overcharge > 150 V for 125 V batteries and > 300 V for 250 V batteries
SR 3.8.6.3 Verify average electrolyte temperature of representative cells is > 65°F.	92 days

Table 3.8.6-1 (page 1 of 1)  
Battery Cell Parameter Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark <sup>(a)</sup>	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark <sup>(a)</sup>	Above top of plates, and not overflowing
Float Voltage	$\geq 2.13$ V	$\geq 2.13$ V	> 2.07 V
Specific Gravity <sup>(b)(c)</sup>	$\geq 1.200$	$\geq 1.195$ <u>AND</u> Average of all connected cells > 1.205	Not more than 0.020 below average of all connected cells <u>AND</u> Average of all connected cells $\geq 1.195$

- (a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum level during and, for a limited time, following equalizing charges provided it is not overflowing.
- (b) Corrected for electrolyte temperature and level.
- (c) A battery charging 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 charging current is used to satisfy 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

#### 3.8.7 Distribution Systems – Operating

- LCO 3.8.7      The following electrical power distribution subsystems shall be OPERABLE:
- a.    Division 1 and Division 2 AC and DC electrical power distribution subsystems; and
  - b.    The portions of the opposite unit's AC and DC electrical power distribution subsystems necessary to support equipment required to be OPERABLE by LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," LCO 3.7.4, "Control Room Emergency Ventilation (CREV) System" (Unit 2 only), LCO 3.7.5, "Control Room Emergency Ventilation Air Conditioning (AC) System" (Unit 2 only), and LCO 3.8.1, "AC Sources – Operating."

APPLICABILITY:    MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more AC electrical power distribution subsystems inoperable.	A.1      Restore AC electrical power distribution subsystems to OPERABLE status.	8 hours  <u>AND</u>  16 hours from discovery of failure to meet LCO 3.8.7.a

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more DC electrical power distribution subsystems inoperable.	B.1 Restore DC electrical power distribution subsystems to OPERABLE status.	2 hours  <u>AND</u> 16 hours from discovery of failure to meet LCO 3.8.7.a
C. One or more required opposite unit AC or DC electrical power distribution subsystems inoperable.	<p>-----NOTE----- Enter applicable Condition and Required Actions of LCO 3.8.1 when Condition C results in the inoperability of a required offsite circuit. -----</p> <p>C.1 Restore required opposite unit AC and DC electrical power distribution subsystems to OPERABLE status.</p>	7 days
D. Required Action and associated Completion Time of Condition A, B, or C not met.	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>
E. Two or more electrical power distribution subsystems inoperable that, in combination, result in a loss of function.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.7.1    Verify correct breaker alignments and voltage to required AC and DC electrical power distribution subsystems.	7 days

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.8 Distribution Systems – Shutdown

LC0 3.8.8      The necessary portions of the AC, DC, and the opposite unit's electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY:    MODES 4 and 5,  
During movement of irradiated fuel assemblies in the secondary containment.

#### ACTIONS

-----NOTE-----  
LC0 3.0.3 is not applicable.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC or DC electrical power distribution subsystems inoperable.	A.1      Declare associated supported required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1    Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status.	Immediately
	<u>AND</u>	
	A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.8.1 Verify correct breaker alignments and voltage to required AC and DC electrical power distribution subsystems.	7 days

### 3.9 REFUELING OPERATIONS

#### 3.9.1 Refueling Equipment Interlocks

LC0 3.9.1 The refueling equipment interlocks associated with the reactor mode switch refuel position shall be OPERABLE.

APPLICABILITY: During in-vessel fuel movement with equipment associated with the interlocks when the reactor mode switch is in the refuel position.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required refueling equipment interlocks inoperable.	A.1 Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s).	Immediately
	<u>OR</u>	
	A.2.1 Insert a control rod withdrawal block.	Immediately
	<u>AND</u>	
	A.2.2 Verify all control rods are fully inserted.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	<p>Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs:</p> <ul style="list-style-type: none"> <li>a. All-rods-in,</li> <li>b. Refuel platform position,</li> <li>c. Refuel platform fuel grapple, fuel loaded,</li> <li>d. Refuel platform fuel grapple fully retracted position,</li> <li>e. Refuel platform frame mounted hoist, fuel loaded, and</li> <li>f. Refuel platform monorail mounted hoist, fuel loaded.</li> </ul>	7 days

### 3.9 REFUELING OPERATIONS

#### 3.9.2 Refuel Position One-Rod-Out Interlock

LC0 3.9.2 The refuel position one-rod-out interlock shall be OPERABLE.

APPLICABILITY: MODE 5 with the reactor mode switch in the refuel position and any control rod withdrawn.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refuel position one-rod-out interlock inoperable.	A.1 Suspend control rod withdrawal.	Immediately
	<u>AND</u> A.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.2.1 Verify reactor mode switch locked in Refuel position.	12 hours

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.2	-----NOTE----- Not required to be performed until 1 hour after any control rod is withdrawn. -----  Perform CHANNEL FUNCTIONAL TEST.	7 days

### 3.9 REFUELING OPERATIONS

#### 3.9.3 Control Rod Position

LC0 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more control rods not fully inserted.	A.1 Suspend loading fuel assemblies into the core.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.3.1 Verify all control rods are fully inserted.	12 hours

### 3.9 REFUELING OPERATIONS

#### 3.9.4 Control Rod Position Indication

LC0 3.9.4 The control rod "full-in" position indication channel for each control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

#### ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more control rod position indication channels inoperable.	A.1.1 Suspend in vessel fuel movement.	Immediately
	<u>AND</u>	
	A.1.2 Suspend control rod withdrawal.	Immediately
	<u>AND</u>	
	A.1.3 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>OR</u>	
		(continued)

Control Rod Position Indication  
3.9.4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.1 Initiate action to fully insert the control rod associated with the inoperable position indicator.	Immediately
	<p style="text-align: center;"><u>AND</u></p> A.2.2 Initiate action to disarm the control rod drive associated with the fully inserted control rod.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.4.1 Verify the channel has no "full-in" indication on each control rod that is not "full-in."	Each time the control rod is withdrawn from the "full-in" position

### 3.9 REFUELING OPERATIONS

#### 3.9.5 Control Rod OPERABILITY - Refueling

LC0 3.9.5 Each withdrawn control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more withdrawn control rods inoperable.	A.1 Initiate action to fully insert inoperable withdrawn control rods.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.5.1 -----NOTE----- Not required to be performed until 7 days after the control rod is withdrawn. ----- Insert each withdrawn control rod at least one notch.	7 days
SR 3.9.5.2 Verify each withdrawn control rod scram accumulator pressure is $\geq$ 940 psig.	7 days

### 3.9 REFUELING OPERATIONS

#### 3.9.6 Reactor Pressure Vessel (RPV) Water Level - Irradiated Fuel

LC0 3.9.6 RPV water level shall be  $\geq$  23 ft above the top of the RPV flange.

APPLICABILITY: During movement of irradiated fuel assemblies within the RPV.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RPV water level not within limit.	A.1 Suspend movement of irradiated fuel assemblies within the RPV.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.6.1 Verify RPV water level is $\geq$ 23 ft above the top of the RPV flange.	24 hours

### 3.9 REFUELING OPERATIONS

#### 3.9.7 Reactor Pressure Vessel (RPV) Water Level—New Fuel or Control Rods

LCO 3.9.7 RPV water level shall be  $\geq 23$  ft above the top of irradiated fuel assemblies seated within the RPV.

APPLICABILITY: During movement of new fuel assemblies or handling of control rods within the RPV, when irradiated fuel assemblies are seated within the RPV.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RPV water level not within limit.	A.1 Suspend movement of new fuel assemblies and handling of control rods within the RPV.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.7.1 Verify RPV water level is $\geq 23$ ft above the top of irradiated fuel assemblies seated within the RPV.	24 hours

### 3.9 REFUELING OPERATIONS

#### 3.9.8 Residual Heat Removal (RHR) - High Water Level

LC0 3.9.8 One RHR shutdown cooling subsystem shall be OPERABLE.

APPLICABILITY: MODE 5 with irradiated fuel in the reactor pressure vessel (RPV) and the water level  $\geq$  23 ft above the top of the RPV flange.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required RHR shutdown cooling subsystem inoperable.	A.1 Verify an alternate method of decay heat removal is available.	1 hour <u>AND</u> Once per 24 hours thereafter
	<u>AND</u> A.2 Verify reactor coolant circulation by an alternate method.	1 hour <u>AND</u> Once per 12 hours thereafter
	<u>AND</u> A.3 Monitor reactor coolant temperature.	Once per hour

(continued)



ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Suspend loading irradiated fuel assemblies into the RPV.	Immediately
	<u>AND</u>	
	B.2 Initiate action to restore secondary containment to OPERABLE status.	Immediately
	<u>AND</u>	
	B.3 Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately
	<u>AND</u>	
	B.4 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Monitor reactor coolant temperature.	1 hour
SR 3.9.8.2	Verify each required RHR shutdown cooling subsystem manual and power operated valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	12 hours

### 3.9 REFUELING OPERATIONS

#### 3.9.9 Residual Heat Removal (RHR) - Low Water Level

LC0 3.9.9 Two RHR shutdown cooling subsystems shall be OPERABLE.

APPLICABILITY: MODE 5 with irradiated fuel in the reactor pressure vessel (RPV) and the water level < 23 ft above the top of the RPV flange.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Separate Condition entry is allowed for each inoperable required RHR shutdown cooling subsystem. -----</p> <p>One or two required RHR shutdown cooling subsystems inoperable.</p>	A.1 Verify an alternate method of decay heat removal is available for the inoperable required RHR shutdown cooling subsystem.	1 hour  <u>AND</u> Once per 24 hours thereafter
	<u>AND</u>	
	A.2 -----NOTE----- Only applicable if both required RHR shutdown cooling subsystems are inoperable. -----	
	Verify reactor coolant circulation by an alternate method.	1 hour  <u>AND</u> Once per 12 hours thereafter
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.3      -----NOTE-----  Only applicable if  both required RHR  shutdown cooling  subsystems are  inoperable.  -----</p> <p>Monitor reactor  coolant temperature.</p>	Once per hour
B. Required Action and associated Completion Time of Condition A not met.	<p>B.1      Initiate action to  restore secondary  containment to  OPERABLE status.</p> <p><u>AND</u></p>	Immediately
	<p>B.2      Initiate action to  restore one standby  gas treatment  subsystem to OPERABLE  status.</p> <p><u>AND</u></p>	Immediately
	<p>B.3      Initiate action to  restore isolation  capability in each  required secondary  containment  penetration flow path  not isolated.</p>	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.9.1	Monitor reactor coolant temperature.	1 hour
SR 3.9.9.2	Verify each required RHR shutdown cooling subsystem manual and power operated valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	12 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.1 Reactor Mode Switch Interlock Testing

LC0 3.10.1 The reactor mode switch position specified in Table 1.1-1 for MODES 3, 4, and 5 may be changed to include the run, startup/hot standby, and refuel position, and operation considered not to be in MODE 1 or 2, to allow testing of instrumentation associated with the reactor mode switch interlock functions, provided:

- a. All control rods remain fully inserted in core cells containing one or more fuel assemblies; and
- b. No CORE ALTERATIONS are in progress.

APPLICABILITY: MODES 3 and 4 with the reactor mode switch in the run, startup/hot standby, or refuel position,  
MODE 5 with the reactor mode switch in the run or startup/hot standby position.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u>	
	A.2 Fully insert all insertable control rods in core cells containing one or more fuel assemblies.	1 hour
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3.1 Place the reactor mode switch in the shutdown position.	1 hour
	<p style="text-align: center;"><u>OR</u></p> <p>A.3.2 -----NOTE----- Only applicable in MODE 5. -----</p> <p>Place the reactor mode switch in the refuel position.</p>	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.1.1 Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.	12 hours
SR 3.10.1.2 Verify no CORE ALTERATIONS are in progress.	24 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.2 Single Control Rod Withdrawal - Hot Shutdown

LC0 3.10.2 The reactor mode switch position specified in Table 1.1-1 for MODE 3 may be changed to include the refuel position, and operation considered not to be in MODE 2, to allow withdrawal of a single control rod, provided the following requirements are met:

- a. LC0 3.9.2, "Refuel Position One-Rod-Out Interlock";
- b. LC0 3.9.4, "Control Rod Position Indication";
- c. All other control rods are fully inserted; and
- d. 1. LC0 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," MODE 5 requirements for Functions 1.a, 1.b, 7.a, 7.b, 11, and 12 of Table 3.3.1.1-1,  
  
LC0 3.3.8.2, "Reactor Protection System (RPS) Electric Power Monitoring," MODE 5 requirements, and  
  
LC0 3.9.5, "Control Rod OPERABILITY - Refueling,"

OR

- 2. All other control rods in a five by five array centered on the control rod being withdrawn are disarmed; at which time LC0 3.1.1, "SHUTDOWN MARGIN (SDM)," MODE 3 requirements, may be changed to allow the single control rod withdrawn to be assumed to be the highest worth control rod.

APPLICABILITY: MODE 3 with the reactor mode switch in the refuel position.



ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each requirement of the LCO.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	<p>A.1 -----NOTES-----</p> <p>1. Required Actions to fully insert all insertable control rods include placing the reactor mode switch in the shutdown position.</p> <p>2. Only applicable if the requirement not met is a required LCO.</p> <p>-----</p> <p>Enter the applicable Condition of the affected LCO.</p>	Immediately
	<u>OR</u>	
	<p>A.2.1 Initiate action to fully insert all insertable control rods.</p>	Immediately
	<p><u>AND</u></p> <p>A.2.2 Place the reactor mode switch in the shutdown position.</p>	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.2.1 Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.2.2 -----NOTE----- Not required to be met if SR 3.10.2.1 is satisfied for LCO 3.10.2.d.1 requirements. ----- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	24 hours
SR 3.10.2.3 Verify all control rods, other than the control rod being withdrawn, are fully inserted.	24 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.3 Single Control Rod Withdrawal—Cold Shutdown

- LCO 3.10.3      The reactor mode switch position specified in Table 1.1-1 for MODE 4 may be changed to include the refuel position, and operation considered not to be in MODE 2, to allow withdrawal of a single control rod, and subsequent removal of the associated control rod drive (CRD) if desired, provided the following requirements are met:
- a. All other control rods are fully inserted;
  - b.
    - 1. LCO 3.9.2, "Refuel Position One-Rod-Out Interlock," and  
LCO 3.9.4, "Control Rod Position Indication,"  
OR
    - 2. A control rod withdrawal block is inserted; and
  - c.
    - 1. LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," MODE 5 requirements for Functions 1.a, 1.b, 7.a, 7.b, 11, and 12 of Table 3.3.1.1-1,  
LCO 3.3.8.2, "Reactor Protection System (RPS) Electric Power Monitoring," MODE 5 requirements, and  
LCO 3.9.5, "Control Rod OPERABILITY—Refueling,"  
OR
    - 2. All other control rods in a five by five array centered on the control rod being withdrawn are disarmed; at which time LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," MODE 4 requirements, may be changed to allow the single control rod withdrawn to be assumed to be the highest worth control rod.

APPLICABILITY:    MODE 4 with the reactor mode switch in the refuel position.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each requirement of the LCO.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met with the affected control rod insertable.	A.1 -----NOTES----- 1. Required Actions to fully insert all insertable control rods include placing the reactor mode switch in the shutdown position.  2. Only applicable if the requirement not met is a required LCO. ----- Enter the applicable Condition of the affected LCO.	Immediately
	<u>OR</u>	
	A.2.1 Initiate action to fully insert all insertable control rods.	Immediately
	<u>AND</u> A.2.2 Place the reactor mode switch in the shutdown position.	1 hour

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more of the above requirements not met with the affected control rod not insertable.	B.1 Suspend withdrawal of the control rod and removal of associated CRD.	Immediately
	<u>AND</u>	
	B.2.1 Initiate action to fully insert all control rods.	Immediately
	<u>OR</u>	
	B.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.3.1 Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.3.2 -----NOTE----- Not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.c.1 requirements. ----- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	24 hours

(continued)

Single Control Rod Withdrawal – Cold Shutdown  
3.10.3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.3.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	24 hours
SR 3.10.3.4	-----NOTE----- Not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.b.1 requirements. -----  Verify a control rod withdrawal block is inserted.	24 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.4 Single Control Rod Drive (CRD) Removal - Refueling

- LCO 3.10.4 The requirements of LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation"; LCO 3.3.8.2, "Reactor Protection System (RPS) Electric Power Monitoring"; LCO 3.9.1, "Refueling Equipment Interlocks"; LCO 3.9.2, "Refuel Position One Rod Out Interlock"; LCO 3.9.4, "Control Rod Position Indication"; and LCO 3.9.5, "Control Rod OPERABILITY - Refueling," may be suspended in MODE 5 to allow the removal of a single CRD associated with a control rod withdrawn from a core cell containing one or more fuel assemblies, provided the following requirements are met:
- a. All other control rods are fully inserted;
  - b. All other control rods in a five by five array centered on the withdrawn control rod are disarmed;
  - c. A control rod withdrawal block is inserted, and LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," MODE 5 requirements may be changed to allow the single control rod withdrawn to be assumed to be the highest worth control rod; and
  - d. No other CORE ALTERATIONS are in progress.

APPLICABILITY: MODE 5 with LCO 3.9.5 not met.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 Suspend removal of the CRD mechanism.  <u>AND</u>	Immediately  (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.1 Initiate action to fully insert all control rods.	Immediately
	<u>OR</u> A.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.4.1 Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, are fully inserted.	24 hours
SR 3.10.4.2 Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, in a five by five array centered on the control rod withdrawn for the removal of the associated CRD, are disarmed.	24 hours
SR 3.10.4.3 Verify a control rod withdrawal block is inserted.	24 hours

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.4.4 Perform SR 3.1.1.1.	According to SR 3.1.1.1
SR 3.10.4.5 Verify no other CORE ALTERATIONS are in progress.	24 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.5 Multiple Control Rod Withdrawal - Refueling

LCO 3.10.5 The requirements of LCO 3.9.3, "Control Rod Position"; LCO 3.9.4, "Control Rod Position Indication"; and LCO 3.9.5, "Control Rod OPERABILITY - Refueling," may be suspended, and the "full-in" position indicators may be bypassed for any number of control rods in MODE 5, to allow withdrawal of these control rods, removal of associated control rod drives (CRDs), or both, provided the following requirements are met:

- a. The four fuel assemblies are removed from the core cells associated with each control rod or CRD to be removed;
- b. All other control rods in core cells containing one or more fuel assemblies are fully inserted; and
- c. Fuel assemblies shall only be loaded in compliance with an approved spiral reload sequence.

APPLICABILITY: MODE 5 with LCO 3.9.3, LCO 3.9.4, or LCO 3.9.5 not met.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 Suspend withdrawal of control rods and removal of associated CRDs.	Immediately
	<u>AND</u>	
	A.2 Suspend loading fuel assemblies.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3.1 Initiate action to fully insert all control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>OR</u> A.3.2 Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.5.1 Verify the four fuel assemblies are removed from core cells associated with each control rod or CRD removed.	24 hours
SR 3.10.5.2 Verify all other control rods in core cells containing one or more fuel assemblies are fully inserted.	24 hours
SR 3.10.5.3 -----NOTE----- Only required to be met during fuel loading. ----- Verify fuel assemblies being loaded are in compliance with an approved spiral reload sequence.	24 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.6 Control Rod Testing—Operating

LCO 3.10.6      The requirements of LCO 3.1.6, "Rod Pattern Control," may be suspended to allow performance of SDM demonstrations, control rod scram time testing, and control rod friction testing, provided:

- a.    The analyzed rod position sequence requirements of SR 3.3.2.1.8 are changed to require the control rod sequence to conform to the specified test sequence.

OR

- b.    The RWM is bypassed; the requirements of LCO 3.3.2.1, "Control Rod Block Instrumentation," Function 2 are suspended; and conformance to the approved control rod sequence for the specified test is verified by a second licensed operator or other qualified member of the technical staff.

APPLICABILITY:    MODES 1 and 2 with LCO 3.1.6 not met.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1      Suspend performance of the test and exception to LCO 3.1.6.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.10.6.1 -----NOTE-----  Not required to be met if SR 3.10.6.2  satisfied.  -----</p> <p>Verify movement of control rods is in  compliance with the approved control rod  sequence for the specified test by a second  licensed operator or other qualified member  of the technical staff.</p>	<p>During control  rod movement</p>
<p>SR 3.10.6.2 -----NOTE-----  Not required to be met if SR 3.10.6.1  satisfied.  -----</p> <p>Verify control rod sequence input to the  RWM is in conformance with the approved  control rod sequence for the specified  test.</p>	<p>Prior to  control rod  movement</p>

### 3.10 SPECIAL OPERATIONS

#### 3.10.7 SHUTDOWN MARGIN (SDM) Test – Refueling

LC0 3.10.7 The reactor mode switch position specified in Table 1.1-1 for MODE 5 may be changed to include the startup/hot standby position, and operation considered not to be in MODE 2, to allow SDM testing, provided the following requirements are met:

- a. LC0 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," MODE 2 requirements for Functions 2.a and 2.d of Table 3.3.1.1-1;
- b. 1. LC0 3.3.2.1, "Control Rod Block Instrumentation," MODE 2 requirements for Function 2 of Table 3.3.2.1-1, with the analyzed rod position sequence requirements of SR 3.3.2.1.8 changed to require the control rod sequence to conform to the SDM test sequence,

OR

- 2. Conformance to the approved control rod sequence for the SDM test is verified by a second licensed operator or other qualified member of the technical staff;
- c. Each withdrawn control rod shall be coupled to the associated CRD;
- d. All control rod withdrawals during out of sequence control rod moves shall be made in the single notch withdrawal mode;
- e. No other CORE ALTERATIONS are in progress; and
- f. CRD charging water header pressure  $\geq$  940 psig.

APPLICABILITY: MODE 5 with the reactor mode switch in startup/hot standby position.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Separate Condition entry is allowed for each control rod. ----- One or more control rods not coupled to its associated CRD.</p>	<p>-----NOTE----- Rod worth minimizer may be bypassed as allowed by LCO 3.3.2.1, "Control Rod Block Instrumentation," if required, to allow insertion of inoperable control rod and continued operation. -----</p>	
	<p>A.1 Fully insert inoperable control rod.</p>	3 hours
	<p><u>AND</u></p>	
	<p>A.2 Disarm the associated CRD.</p>	4 hours
<p>B. One or more of the above requirements not met for reasons other than Condition A.</p>	<p>B.1 Place the reactor mode switch in the shutdown or refuel position.</p>	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.10.7.1 Perform the MODE 2 applicable SRs for LCO 3.3.1.1, Functions 2.a and 2.d of Table 3.3.1.1-1.</p>	<p>According to the applicable SRs</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.7.2	<p>-----NOTE----- Not required to be met if SR 3.10.7.3 satisfied. -----</p> <p>Perform the MODE 2 applicable SRs for LC0 3.3.2.1, Function 2 of Table 3.3.2.1-1.</p>	According to the applicable SRs
SR 3.10.7.3	<p>-----NOTE----- Not required to be met if SR 3.10.7.2 satisfied. -----</p> <p>Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.</p>	During control rod movement
SR 3.10.7.4	Verify no other CORE ALTERATIONS are in progress.	12 hours

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.10.7.5    Verify each withdrawn control rod does not go to the withdrawn overtravel position.</p>	<p>Each time the control rod is withdrawn to "full out" position</p> <p><u>AND</u></p> <p>Prior to satisfying LCO 3.10.7.c requirement after work on control rod or CRD System that could affect coupling</p>
<p>SR 3.10.7.6    Verify CRD charging water header pressure <math>\geq</math> 940 psig.</p>	<p>7 days</p>

## 4.0 DESIGN FEATURES

---

### 4.1 Site Location

#### 4.1.1 Site and Exclusion Area

The site consists of approximately 784 acres on the east bank of the Mississippi River opposite the mouth of the Wapsipinicon River, approximately three miles north of the village of Cordova, Rock Island County, Illinois. The exclusion area shall not be less than 380 meters from the centerline of the chimney.

#### 4.1.2 Low Population Zone

The low population zone shall be a three mile radius from the centerline of the chimney.

---

### 4.2 Reactor Core

#### 4.2.1 Fuel Assemblies

The reactor shall contain 724 fuel assemblies. Each assembly shall consist of a matrix of Zircaloy clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide ( $UO_2$ ) as fuel material. The assemblies may contain water rods or a water box. Limited substitutions of Zircaloy or ZIRLO filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with NRC staff approved codes and methods and have been shown by tests or analyses to comply with all safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.

#### 4.2.2 Control Rod Assemblies

The reactor core shall contain 177 cruciform shaped control rod assemblies. The control material shall be boron carbide and hafnium metal as approved by the NRC.

---

(continued)

#### 4.0 DESIGN FEATURES (continued)

---

#### 4.3 Fuel Storage

##### 4.3.1 Criticality

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

- a.  $k_{eff} \leq 0.95$  if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.1.2 of the UFSAR; and
- b. A nominal 6.22 inch center to center distance between fuel assemblies placed in the storage racks.

##### 4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 666 ft 8.5 inches.

##### 4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 3657 fuel assemblies for Unit 1 and 3897 fuel assemblies for Unit 2.

---

## 5.0 ADMINISTRATIVE CONTROLS

### 5.1 Responsibility

---

- 5.1.1 The station manager shall be responsible for overall unit operation and shall delegate in writing the succession to this responsibility during his absence.
- 5.1.2 A unit supervisor shall be responsible for the control room command function (Since the control room is common to both units, the control room command function for both units can be satisfied by a single unit supervisor). During any absence of the unit supervisor from the control room while the unit is in MODE 1, 2, or 3, an individual with an active Senior Reactor Operator (SRO) license shall be designated to assume the control room command function. During any absence of the unit supervisor from the control room while the unit is in MODE 4 or 5 or defueled, an individual with an active SRO license or Reactor Operator license shall be designated to assume the control room command function.
-

## 5.0 ADMINISTRATIVE CONTROLS

### 5.2 Organization

---

#### 5.2.1 Onsite and Offsite Organizations

Onsite and offsite organizations shall be established for unit operation and corporate management, respectively. The onsite and offsite organizations shall include the positions for activities affecting safety of the nuclear power plant.

- a. Lines of authority, responsibility, and communication shall be defined and established throughout highest management levels, intermediate levels, and all operating organization positions. These relationships shall be documented and updated, as appropriate, in organization charts, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements, including the plant-specific titles of those personnel fulfilling the responsibilities of the positions delineated in these Technical Specifications, shall be documented in the Quality Assurance Manual.
- 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. A corporate officer shall have corporate responsibility for overall plant nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the plant to ensure nuclear safety.
- d. The individuals who train the operating staff, or perform radiation protection or quality assurance functions, may report to the appropriate onsite manager; however, these individuals shall have sufficient organizational freedom to ensure their independence from operating pressures.

#### 5.2.2 Unit Staff

The unit staff organization shall include the following:

---

(continued)

## 5.2 Organization

---

### 5.2.2 Unit Staff (continued)

- a. A total of three non-licensed operators for the two units is required in all conditions. At least one of the required non-licensed operators shall be assigned to each unit.
  - b. Shift crew composition may be less than the minimum requirement of 10 CFR 50.54(m)(2)(i) and Specifications 5.2.2.a and 5.2.2.f for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements.
  - c. A radiation protection technician shall be on site when fuel is in the reactor. The position may be vacant for not more than 2 hours, in order to provide for unexpected absence, provided immediate action is taken to fill the required position.
  - d. The amount of overtime worked by unit staff members performing safety related functions shall be limited and controlled in accordance with the NRC Policy Statement on working hours (Generic Letter 82-12).
  - e. The operations manager or shift operations supervisor shall hold an SRO license.
  - f. The Shift Technical Advisor (STA) shall provide advisory technical support to the shift manager in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit. In addition, the STA shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift.
-

5.0 ADMINISTRATIVE CONTROLS

5.3 Unit Staff Qualifications

---

- 5.3.1 Each member of the unit staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971, except for the radiation protection manager or lead radiation protection technician, who shall meet or exceed the qualifications for "Radiation Protection Manager" in Regulatory Guide 1.8, September 1975.
-

## 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, Section 7.1;
  - c. Fire Protection Program implementation; and
  - d. 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)

- a. The ODCM shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the radiological environmental monitoring program; and
- b. The ODCM shall also contain the radioactive effluent controls and radiological environmental monitoring activities, and descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Radioactive Effluent Release Reports required by Specification 5.6.2 and Specification 5.6.3.
- c. Licensee initiated changes to the ODCM:
  1. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:
    - (a) Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and
    - (b) A determination that the change(s) maintain the levels of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, and 10 CFR 50, Appendix I, and do not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations;
  2. Shall become effective after the approval of the station manager; and
  3. 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

---

(continued)

## 5.5 Programs and Manuals

---

### 5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

shall indicate the date (i.e., month and year) the change was implemented.

### 5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include the Core Spray, High Pressure Coolant Injection, Residual Heat Removal, Reactor Core Isolation Cooling, Reactor Water Cleanup, process sampling, containment monitoring, and Standby Gas 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 24 month intervals.

The provisions of SR 3.0.2 are applicable to the 24 month Frequency for performing integrated system leak test activities.

### 5.5.3 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, and containment atmosphere samples under accident conditions. The program shall include the following:

- a. Training of personnel;
- b. Procedures for sampling and analysis; and
- c. Provisions for maintenance of sampling and analysis equipment.

---

(continued)

## 5.5 Programs and Manuals

---

### 5.5.4 Radioactive Effluent Controls Program

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

- a. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM;
- b. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to ten times the concentration values in Appendix B, Table 2, Column 2 to 10 CFR 20.1001-20.2402;
- c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM;
- d. Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released from each unit to unrestricted areas, conforming to 10 CFR 50, Appendix I;
- e. Determination of cumulative 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 from the site to areas at or beyond the site boundary shall be in accordance with the following:

(continued)

## 5.5 Programs and Manuals

---

### 5.5.4 Radioactive Effluent Controls Program (continued)

1. For noble gases: a dose rate  $\leq$  500 mrem/yr to the whole body and a dose rate  $\leq$  3000 mrem/yr to the skin, and
  2. For iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days: a dose rate  $\leq$  1500 mrem/yr to any organ;
- h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;
- i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives  $>$  8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and
- j. Limitations on the annual dose or dose commitment to any member of the public, beyond the site boundary, due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluents Control Program Surveillance Frequencies.

### 5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the UFSAR Section 3.9, cyclic and transient occurrences to ensure that components are maintained within the design limits.

### 5.5.6 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 are as follows:

---

(continued)

## 5.5 Programs and Manuals

### 5.5.6 Inservice Testing Program (continued)

<u>ASME Boiler and Pressure Vessel Code and applicable Addenda terminology for inservice testing activities</u>	<u>Required Frequencies for performing inservice testing activities</u>
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
Every 48 months	At least once per 1461 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.

### 5.5.7 Ventilation Filter Testing Program (VFTP)

The VFTP shall establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems. Tests described in Specification 5.5.7.a and 5.5.7.b shall be performed once per 24 months; after each complete or partial replacement of the HEPA filter bank or charcoal adsorber bank; after any structural maintenance on the HEPA filter bank or charcoal adsorber bank housing; and, following painting, fire, or chemical release in any ventilation zone communicating with the subsystem while it is in operation that could adversely affect the filter bank or charcoal adsorber capability.

(continued)

## 5.5 Programs and Manuals

### 5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

Tests described in Specification 5.5.7.c shall be performed once per 24 months; after 1440 hours of adsorber operation for the Standby Gas Treatment System; after 720 hours of adsorber operation for the Control Room Emergency Ventilation System; after any structural maintenance on the charcoal adsorber bank housing; and, following painting, fire, or chemical release in any ventilation zone communicating with the subsystem while it is in operation that could adversely affect the charcoal adsorber capability.

Tests described in Specification 5.5.7.d and 5.5.7.e shall be performed once per 24 months.

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

- a. Demonstrate for each of the ESF systems that an inplace test of the HEPA filters shows a penetration and system bypass specified below when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI/ASME N510-1980 at the system flowrate specified below:

<u>ESF Ventilation System</u>	<u>Penetration</u>	<u>Flowrate</u>
Standby Gas Treatment (SGT) System	< 1.0%	≥ 3600 cfm and ≤ 4400 cfm
Control Room Emergency Ventilation (CREV) System	< 0.05%	≥ 1800 scfm and ≤ 2200 scfm

- b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass specified below when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI/ASME N510-1980 at the system flowrate specified below:

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation filter Testing Program (VFTP) (continued)

<u>ESF Ventilation System</u>	<u>Penetration</u>	<u>Flowrate</u>
Standby Gas Treatment (SGT) System	< 1.0%	$\geq$ 3600 cfm and $\leq$ 4400 cfm
Control Room Emergency Ventilation (CREV) System	< 0.05%	$\geq$ 1800 scfm and $\leq$ 2200 scfm

- c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and relative humidity (RH) specified below:

<u>ESF Ventilation System</u>	<u>Penetration</u>	<u>RH</u>
Standby Gas Treatment (SGT) System	2.5%	70%
Control Room Emergency Ventilation (CREV) System	0.5%	70%

- d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters and the charcoal adsorbers is less than the value specified below when tested at the system flowrate specified as follows:

<u>ESF Ventilation System</u>	<u>Delta P</u>	<u>Flowrate</u>
Standby Gas Treatment (SGT) System	< 6 inches water guage	$\geq$ 3600 cfm and $\leq$ 4400 cfm
Control Room Emergency Ventilation (CREV) System	< 6 inches water guage	$\geq$ 1800 scfm and $\leq$ 2200 scfm

(continued)

5.5 Programs and Manuals

---

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

- e. Demonstrate that the heaters for each of the ESF systems dissipate the value, corrected for voltage variations at the 480 V bus, specified below when tested in accordance with ANSI/ASME N510-1989:

<u>ESF Ventilation System</u>	<u>Wattage</u>
Standby Gas Treatment (SGT) System	$\geq 27$ kW and $\leq 33$ kW
Control Room Emergency Ventilation (CREV) System	$\geq 10.8$ kW and $\leq 13.2$ kW

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the Off-Gas System and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

The program shall include:

- a. The limits for concentrations of hydrogen in the Off-Gas System and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion); and
- b. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is less than the amount that would result in concentrations less than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

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

(continued)

---



## 5.5 Programs and Manuals

---

### 5.5.9 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program shall establish the required testing of both new fuel oil and stored fuel oil. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

- a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:
  1. An API gravity or an absolute specific gravity within limits,
  2. A flash point and kinematic viscosity within limits, and
  3. A clear and bright appearance with proper color or water and sediment within limits;
- b. Within 31 days following addition of the new fuel oil to storage tanks verify that the properties of the new fuel oil, other than those addressed in a., above, are within limits; and
- c. Total particulate concentration of the fuel oil in the storage tanks is  $\leq 10$  mg/l when tested every 31 days in accordance with the applicable ASTM Standard.

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

### 5.5.10 Technical Specifications (TS) Bases Control Program

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

- a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.
- b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:
  1. A change in the TS incorporated in the license; or

---

(continued)

## 5.5 Programs and Manuals

---

### 5.5.10 Technical Specifications (TS) Bases Control Program (continued)

2. A change to the UFSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.
- c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the UFSAR.
- d. Proposed changes that meet the criterion of Specification 5.5.10.b.1 or 5.5.10.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).

### 5.5.11 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.

- a. The SFDP shall contain the following:
  1. Provisions for cross division checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;
  2. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;
  3. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and
  4. Other appropriate limitations and remedial or compensatory actions.

---

(continued)

## 5.5 Programs and Manuals

---

### 5.5.11 Safety Function Determination Program (SFDP) (continued)

- b. A loss of safety function exists when, assuming no concurrent single failure, and assuming no concurrent loss of offsite power or loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:
  - 1. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or
  - 2. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or
  - 3. A required system redundant to support system(s) for the supported systems described in b.1 and b.2 above is also inoperable.
- c. The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

### 5.5.12 Primary Containment Leakage Rate Testing Program

- a. This program shall establish the leakage testing of the primary containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemption. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Testing Program," dated September 1995.
- b. The peak calculated primary containment internal pressure for the design basis loss of coolant accident,  $P_a$ , is 48 psig.

---

(continued)

5.5 Programs and Manuals

---

5.5.12 Primary Containment Leakage Rate Testing Program (continued)

- c. The maximum allowable primary containment leakage rate,  $L_a$ , at  $P_a$ , is 1% of primary containment air weight per day.
  - d. Leakage rate acceptance criteria are:
    - 1. Primary containment overall 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 combined Type B and Type C tests, and  $\leq 0.75 L_a$  for Type A tests.
    - 2. Air lock testing acceptance criteria is the overall air lock leakage rate is  $\leq 0.05 L_a$  when tested at  $\geq P_a$ .
  - e. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.
-

## 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  $> 100$  mrem and the associated collective deep dose equivalent (reported in man-rem) according to work and job functions (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling). This tabulation supplements the requirements of 10 CFR 20.2206. The dose assignments to various duty functions may be estimated based on pocket ionization chamber, thermoluminescence dosimeter (TLD), or electronic dosimeter measurements. Small exposures totaling  $< 20\%$  of the individual total dose need not be accounted for. In the aggregate, at least 80% 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

(continued)

## 5.6 Reporting Requirements

---

### 5.6.2 Annual Radiological Environmental Operating Report (continued)

(ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

### 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 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 the Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

### 5.6.4 Monthly Operating Reports

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

### 5.6.5 CORE OPERATING LIMITS REPORT (COLR)

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

1. The APLHGR for Specification 3.2.1.
2. The MCPR for Specification 3.2.2.

---

(continued)

## 5.6 Reporting Requirements

---

### 5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

3. The LHGR for Specification 3.2.3.
  4. The LHGR and transient linear heat generation rate limit for Specification 3.2.4.
  5. Control Rod Block Instrumentation Setpoint for the Rod Block Monitor—Upscale Function Allowable Value for Specification 3.3.2.1.
- 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. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel."
  2. Commonwealth Edison Topical Report NFSR-0085, "Benchmark of BWR Nuclear Design Methods."
  3. Advanced Nuclear Fuels Methodology for Boiling Water Reactors, XN-NF-80-19(P)(A).
  4. Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel, XN-NF-85-67(P)(A).
  5. Qualification of Exxon Nuclear Fuel for Extended Burnup, XN-NF-82-06(P)(A).
  6. Advanced Nuclear Fuels Corporation Generic Mechanical Design for Advanced Nuclear Fuels 9x9-IX and 9x9-9X BWR Reload Fuel, ANF-89-014(P)(A).
  7. Generic Mechanical Design Criteria for BWR Fuel Designs, ANF-89-98(P)(A).
  8. Exxon Nuclear Plant Transient Methodology for Boiling Water Reactors, XN-NF-79-71(P)(A).
  9. ANFB Critical Power Correlation, ANF-1125(P)(A).

(continued)

---

## 5.6 Reporting Requirements

---

### 5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

10. Advanced Nuclear Fuels Corporation Critical Power Methodology for Boiling Water Reactors/Advanced Nuclear Fuels Corporation Critical Power Methodology for Boiling Water Reactors: Methodology for Analysis of Assembly Channel Bowing Effects/NRC Correspondence, ANF-524(P)(A).
11. COTRANSA 2: A Computer Program for Boiling Water Reactor Transient Analyses, ANF-913(P)(A).
12. Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model, ANF-91-048(P)(A).
13. Commonwealth Edison Topical Report NFSR-0091, "Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods."
14. ANFB Critical Power Correlation Application for Coresident Fuel, EMF-1125(P)(A).

The COLR will contain the complete identification for each of the TS referenced topical reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements).

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

### 5.6.6 Post Accident Monitoring (PAM) Instrumentation Report

When a report is required by Condition B or F of LCO 3.3.3.1, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.



## 5.0 ADMINISTRATIVE CONTROLS

### 5.7 High Radiation Area

---

- 5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is  $> 100$  mrem/hr but  $< 1000$  mrem/hr at 30 cm (12 in.), shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP) (or equivalent document). Individuals qualified in radiation protection procedures (e.g., radiation protection technicians) or personnel escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties, provided they are otherwise following plant radiation protection procedures for entry into high radiation areas.

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

- a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.
- b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.
- c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified in the RWP (or equivalent document).

- 5.7.2 In addition to the requirements of Specification 5.7.1, areas accessible to personnel with radiation levels  $> 1000$  mrem/hr at 30 cm (12 in.) from the radiation source or from any surface which the radiation penetrates shall require the following:

- a. Doors shall be locked to prevent unauthorized entry and shall not prevent individuals from leaving the area. In place of locking the door, direct or electronic surveillance

(continued)

## 5.7 High Radiation Area

---

### 5.7.2 (continued)

that is capable of preventing unauthorized entry may be used. The keys shall be maintained under the administrative control of the Shift Engineer on duty or radiation protection supervision.

- b. Personnel access and exposure control requirements of activities being performed within these areas shall be specified by an approved RWP (or equivalent document).
- c. Each person entering the area shall be provided with an alarming radiation monitoring device that continuously integrates the radiation dose rate (such as an electronic dosimeter). Surveillance and radiation monitoring by a radiation protection technician may be substituted for an alarming dosimeter.

- 5.7.3 For individual high radiation areas with radiation levels of > 1000 mrem/hr at 30 cm (12 in.), accessible to personnel, that are located within large areas where no enclosure exists for purposes of locking, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded and conspicuously posted, and a flashing light shall be activated as a warning device.
-