UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ENTERGY ARKANSAS, LLC

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT 1

RENEWED FACILITY OPERATING LICENSE

Renewed License No. DPR-51

1. The U.S. Nuclear Regulatory Commission (the Commission) having previously made the findings set forth in License No. DPR-51 issued on May 21, 1974, has now found that:

   a. The application to renew License No. DPR-51 filed by Entergy Arkansas, LLC and Entergy Operations, Inc., complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I and all required notifications to other agencies or bodies have been duly made;

   b. Actions have been identified and have been or will be taken with respect to (1) managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21(a)(1); and (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21(c), such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3, for the Arkansas Nuclear One, Unit 1 plant and that any changes made to the plant's current licensing basis in order to comply with 10 CFR 54.29(a) are in accord with the Act and the Commission's regulations;

   c. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;

   d. There is reasonable assurance (i) that the activities authorized by this renewed license can be conducted without endangering the health and safety of the public and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;

   e. Entergy Operations, Inc. (EOI) is technically and financially qualified to engage in the activities authorized by this renewed license in accordance with the rules and regulations of the Commission;

   f. Entergy Arkansas, LLC has satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;

g. The renewal of this operating license will not be inimical to the common defense and security or to the health and safety of the public;

h. After weighing the environmental, economic, technical, and other benefits of the facility against environmental costs and considering available alternatives, the issuance of the renewed Facility Operating License No. DPR-51 is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied; and

i. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this renewed license will be in accordance with the Commission's regulations in 10 CFR Parts 30, 40 and 70, including 10 CFR Section 30.33, 40.32, 70.23 and 70.31.

2. On the basis of the foregoing findings regarding this facility, Facility Operating License DPR-51, issued on May 21, 1974, is superseded by renewed Facility Operating License No. DPR-51, which is hereby issued to Entergy Arkansas, LLC and Entergy Operations, Inc., to read as follows:

a. This renewed license applies to Arkansas Nuclear One, Unit 1, a pressurized water reactor and associated equipment (the facility), owned by Entergy Arkansas, LLC. The facility is located in Pope County, Arkansas, and is described in the "Safety Analysis Report" (SAR) as supplemented and amended, and the Environmental Report as supplemented and amended.

b. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:

(1) Entergy Arkansas, LLC, pursuant to Section 104b of the Act and 10 CFR Part 50, to possess but not operate the facility at the designated location in Pope County, Arkansas, in accordance with the procedures and limitations set forth in this renewed license.

(2) EOI, pursuant to Section 104b of the Act and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to possess, use, and operate the facility at the designated location in Pope County, Arkansas in accordance with the procedures and limitations set forth in this renewed license;

(3) EOI, pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time at the facility site and as designated solely for the facility, special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the SAR, as supplemented and amended;

(4) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(5) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components;

(6) EOI, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

c. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

EOI is authorized to operate the facility at steady state reactor core power levels not in excess of 2568 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 282, are hereby incorporated in the renewed license. EOI shall operate the facility in accordance with the Technical Specifications.

(3) Safety Analysis Report

The licensee's SAR supplement submitted pursuant to 10 CFR 54.21(d), as revised on March 14, 2001, describes certain future inspection activities to be completed before the period of extended operation. The licensee shall complete these activities no later than May 20, 2014.

(4) Physical Protection

EOI shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans, including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Arkansas Nuclear One Physical Security Plan, Training and Qualifications Plan, and Safeguards Contingency Plan," as submitted on May 4, 2006.

EOI shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The EOI CSP was approved by License Amendment No. 244 as supplemented by changes approved by License Amendment Nos. 247, 251, and 255.

(5) Implementation of the Improved Technical Specifications (ITS)

The licensee is authorized to relocate certain Technical Specification requirements previously included in Appendix A to licensee controlled documents, as described in Table R, Relocated Specifications, and Table LA, Removal of Details, attached to the Safety Evaluation for Amendment No. 215. These requirements shall be relocated to the appropriate documents as part of the implementation of the ITS.

The schedule for performing Surveillance Requirements (SRs) that are new or revised in Amendment No. 215 shall be as follows:

1. For SRs that are new in this amendment, the first performance shall be due at the end of the first surveillance interval, which begins on the date of implementation of this amendment.

2. For SRs that existed prior to this amendment whose intervals of performance are being reduced, the first reduced surveillance interval shall begin upon completion of the first surveillance performed after implementation of this amendment.

3. For SRs that existed prior to this amendment that contained modified acceptance criteria, the performance shall be due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment.

4. For SRs that existed prior to this amendment whose interval of performance are being extended, the first extended surveillance interval shall begin upon completion of the last surveillance performed prior to the implementation of this amendment.

(6) Surveillance Frequency Control Program

The licensee shall implement the items listed in Table 2 of the enclosure to Entergy letter 1CAN121802, dated December 11, 2018, prior to implementation of the Surveillance Frequency Control Program.

(7) Deleted

(8) Fire Protection

Entergy Operations, Inc. shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated January 29, 2014, and supplements dated May 19, 2015, June 16, 2015, July 21, 2015, August 12, 2015, September 22, 2015, November 4, 2015, November 17, 2015, January 15, 2016, March 25, 2016, April 7, 2016, May 19, 2016, and August 29, 2016, and as approved in the SE dated October 7, 2016. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

Risk-Informed Changes that may be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at ANO-1. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

1. Prior NRC review and approval is not required for changes that clearly result in a decrease in risk. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

2. Prior NRC review and approval is not required for individual changes that result in a risk increase less than 1×10^{-7}/year (yr) for CDF and less than 1×10^{-8}/yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

Other Changes that may be Made Without Prior NRC Approval

1. Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program

   Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to NFPA 805, Chapter 3 element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

   The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3 elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

   - Fire Alarm and Detection Systems (Section 3.8);
   - Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
   - Gaseous Fire Suppression Systems (Section 3.10); and,
   - Passive Fire Protection Features (Section 3.11).

   This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

2. Fire Protection Program Changes that have No More than Minimal Risk Impact

   Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC SE dated October 7, 2016, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

Transition License Conditions

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by 2. below, risk-informed changes to the Entergy Operations, Inc. fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in 2. above.

2. The licensee shall implement the modifications to its facility, as described in Table S-1, "Plant Modifications," Attachment S, of Entergy Operations, Inc. letter 1CAN051602, dated May 19, 2016, prior to startup from the second refueling outage following issuance of the Safety Evaluation. The licensee shall maintain appropriate compensatory measures in place until completion of the modifications.

3. The licensee shall complete the implementation items as listed in Table S-2, "Implementation Items," Attachment S, of Entergy Operations, Inc. letter 1CAN051602, dated May 19, 2016, within six months after issuance of the Safety Evaluation.

(9) Mitigation Strategies

The licensee shall develop and maintain strategies for addressing large fires and explosions that include the following key areas:

1. Fire fighting response strategy with the following elements:
   (a) Pre-defined coordinated fire response strategy and guidance
   (b) Assessment of mutual aid fire fighting assets
   (c) Designated staging areas for equipment and materials
   (d) Command and control
   (e) Training of response personnel
2. Operations to mitigate fuel damage considering the following:
   (a) Protection and use of personnel assets
   (b) Communications
   (c) Minimizing fire spread
   (d) Procedures for implementing integrated fire response strategy
   (e) Identification of readily-available pre-staged equipment
   (f) Training on integrated fire response strategy
   (g) Spent fuel pool mitigation measures
3. Actions to minimize release to include consideration of:
   (a) Water spray scrubbing
   (b) Dose to onsite responders

(10) Upon implementation of Amendment 239 adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 3.7.9.4, in accordance with Specifications 5.5.5.c.(i), 5.5.5.c.(ii), and 5.5.5.d, shall be considered met. Following implementation:

1. The first performance of SR 3.7.9.4, in accordance with Specification 5.5.5.c.(i), shall be within 15 months of the approval of TSTF-448. SR 3.0.2 will not be applicable to this first performance.

2. The first performance of the periodic assessment of CRE habitability, Specification 5.5.5.c.(ii), shall be within 15 months of the approval of TSTF-448. SR 3.0.2 will not be applicable to this first performance.

3. The first performance of the periodic measurement of CRE pressure, Specification 5.5.5.d, shall be within 15 months of the approval of TSTF-448. SR 3.0.2 will not be applicable to this first performance.

(11) 10 CFR 50.69, Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors

Entergy is approved to implement 10 CFR 50.69 using the processes for categorization of Risk-Informed Safety Class (RISC)-1, RISC-2, RISC-3, and RISC-4 Structures, Systems, and Components (SSCs) using: Probabilistic Risk Assessment (PRA) models to evaluate risk associated with internal events, including internal flooding, and internal fire; the shutdown safety assessment process to assess shutdown risk; the Arkansas Nuclear One, Unit 2 (ANO-2) passive categorization method to assess passive component risk for Class 2 and Class 3 SSCs and their associated supports; the results of the non-PRA evaluations that are based on the IPEEE Screening Assessment for External Hazards updated using the external hazard screening significance process identified in ASME/ANS PRA Standard RA-Sa-2009 for other external hazards except wind-generated missiles and seismic; the tornado safe shutdown equipment list for wind-generated missiles; and the alternative seismic approach as described in the Entergy submittal letter dated May 26, 2021, and all its subsequent associated supplements, as specified in License Amendment No. 277 dated June 23, 2022.

Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization process specified above (e.g., change from a seismic margins approach to a seismic PRA approach).

3. This renewed license is effective as of the date of issuance and shall expire at midnight, May 20, 2034.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by:
Jon R. Johnson

Jon R. Johnson, Acting Director
Office of Nuclear Reactor Regulation

Attachment:
Appendix A - Technical Specifications and
Technical Specifications Bases (ML011710071 and ML011710100)

Date of Issuance: June 20, 2001

1.0 USE AND APPLICATION

1.1 Definitions

NOTE

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

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

1.1 Definition	
CHANNEL CALIBRATION (continued)	The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY 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 steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
CONTROL RODS	CONTROL RODS shall be all full length safety and regulating rods that are used to shutdown the reactor and control power level during maneuvering operations.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the ANO-1 specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.

1.1 Definition (continued)

DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries per gram) that alone would produce the same committed effective dose equivalent (CEDE) as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The CEDE dose conversion factors used to determine the DOSE EQUIVALENT I-131 shall be performed using Table 2.1 of EPA Federal Guidance Report No. 11, 1988, "Limiting Values of Radionuclide Intake and Air Concentration and Dose conversion Factors for Inhalation, Submersion, and Ingestion."
DOSE EQUIVALENT XE-133	DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil."
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 1. LEAKAGE, such as that from pump seals or valve packing (except RCP seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank; 2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known to not interfere with the operation of leakage detection systems; or 3. Reactor Coolant System (RCS) LEAKAGE through a steam generator to the Secondary System (primary to secondary LEAKAGE).

1.1 Definition (continued)

LEAKAGE (continued)	b. <u>Unidentified LEAKAGE</u> All LEAKAGE (except RCP seal water injection and leakoff) that is not identified LEAKAGE. c. <u>Pressure Boundary LEAKAGE</u> LEAKAGE (except primary to secondary LEAKAGE) through a fault in an RCS component body, pipe wall, or vessel wall. LEAKAGE past seals, packing, and gaskets is not pressure boundary LEAKAGE.
MODE	A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE-OPERABILITY	A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: a. Described in the SAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
QUADRANT POWER TILT (QPT)	QPT shall be defined by the following equation and is expressed as a percentage. $$QPT = 100\left(\frac{\text{Power in any Core Quadrant}}{\text{Average Power in all Quadrants}} - 1\right)$$

1.1 Definition (continued)

RATED THERMAL POWER (RTP)	RTP shall be a total steady state reactor core heat transfer rate to the reactor coolant of 2568 MWt.
SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming: a. All full length CONTROL RODS (safety and regulating) are fully inserted except for the single CONTROL ROD of highest reactivity worth, which is assumed to be fully withdrawn. With any CONTROL ROD not capable of being fully inserted, the reactivity worth of these CONTROL RODS must be accounted for in the determination of SDM; b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level; and c. There is no change in APSR position.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

Table 1.1-1

MODES

MODE	TITLE	REACTIVITY CONDITION (k_{eff})	% RATED THERMAL POWER [a]	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	≥ 0.99	> 5	NA
2	Startup	≥ 0.99	≤ 5	NA
3	Hot Standby	< 0.99	NA	≥ 280
4	Hot Shutdown [b]	< 0.99	NA	280 > T_{avg} > 200
5	Cold Shutdown [b]	< 0.99	NA	≤ 200
6	Refueling [c]	NA	NA	NA

(a) Excluding decay heat.

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

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

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE

The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are AND and OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.

BACKGROUND

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

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

EXAMPLES

The following examples illustrate the use of logical connectors.

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-1

ACTIONS

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

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

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

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

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

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
DESCRIPTION	The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the 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. Unless otherwise specified, the Completion Time begins when a senior licensed operator on the operating shift crew with responsibility for plant operations makes the determination that an LCO is not met and an ACTIONS Condition is entered. The "otherwise specified" exceptions are varied, such as a Required Action Note or Surveillance Requirement Note that provides an alternative time to perform specific tasks, such as testing, without starting the Completion Time. While utilizing the Note, should a Condition be applicable for any reason not addressed by the Note, the Completion Time begins. Should the time allowance in the Note be exceeded, the Completion Time begins at that point. The exceptions may also be incorporated into the Completion Time. For example, LCO 3.8.1, "AC Sources - Operating," Required Action B.2, requires declaring required feature(s) supported by an inoperable diesel generator, inoperable when the redundant required feature(s) are inoperable. The Completion Time states, "4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)." In this case the Completion Time does not begin until the conditions in the Completion Time are satisfied. 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.

1.3 Completion Times

DESCRIPTION (continued)

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 discovery of the situation that required entry into the Condition, unless otherwise specified.

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

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

a. Must exist concurrent with the first inoperability; and

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

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

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

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

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

1.3 Completion Times (continued)

DESCRIPTION (continued)

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 . . ."

EXAMPLES

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

EXAMPLE 1.3-1

ACTIONS

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

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

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

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

EXAMPLE 1.3-3

ACTIONS

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

1.3 Completion Times

EXAMPLES (continued)

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

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

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

EXAMPLE 1.3-6

ACTIONS

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

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

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

1.3 Completion Times

EXAMPLES (continued)

Example 1.3-7

ACTIONS

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

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

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

1.3 Completion Times

EXAMPLES (continued)

Example 1.3-8

ACTIONS

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

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

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

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE

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

DESCRIPTION

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

The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR, as well as certain Notes in the Surveillance column that modify performance requirements.

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

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

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

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

1.4 Frequency

DESCRIPTION (continued)

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

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

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

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

EXAMPLES

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

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

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

EXAMPLES (continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

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

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

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

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

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

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

EXAMPLES (continued)

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

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

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

EXAMPLES (continued)

EXAMPLE 1.4-5

SURVEILLANCE REQUIREMENTS

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

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

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-6

SURVEILLANCE REQUIREMENTS

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

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

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 In MODES 1 and 2, the maximum local fuel pin centerline temperature shall be $\leq$ 5080 - (6.5 x 10^{-3} x (Burnup, MWD/MTU)°F) for TACO2 applications, $\leq$ 4642 - (5.8 x 10^{-3} x (Burnup, MWD/MTU)°F) for TACO 3 applications, and $\leq$ 4901 °F, decreasing linearly by 13.7 °F per 10,000 MWD/MTU of burnup for COPERNIC applications.

2.1.1.2 In MODES 1 and 2, the departure from nucleate boiling ratio shall be maintained greater than the limits of 1.3 for the BAW-2 correlation, 1.18 for the BWC correlation, and 1.132 for the BHTP correlation.

2.1.1.3 In MODES 1 and 2, Reactor Coolant System (RCS) core outlet temperature and pressure shall be maintained above and to the left of the Variable Low RCS Pressure-Temperature Protective Limits as specified in the Core Operating Limits Report, so that the safety limits are met.

2.1.2 RCS Pressure SL

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

2.2 SL Violations

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

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

2.2.2 In MODE 1 or 2, if SL 2.1.1.3 is violated, restore RCS pressure and temperature within limits AND be in MODE 3 within 1 hour.

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

2.2.4 In MODES 3, 4, and 5, if SL 2.1.2 is violated, restore RCS pressure to $\leq$ 2750 psig within 5 minutes.

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

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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

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

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

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

a. MODE 3 within 7 hours;

b. MODE 4 within 13 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

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

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

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

a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time;

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

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

c. When an allowance is stated in the individual value, parameter, or other Specification.

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

LCO 3.0.5

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

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.15, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

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

LCO 3.0.7

Test Exception LCOs 3.1.8 and 3.1.9 allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

3.0 LCO APPLICABILITY

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

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

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

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

LCO 3.0.9 When one or more required barriers are unable to perform their related support function(s), any supported system LCO(s) are not required to be declared not met solely for this reason for up to 30 days provided that at least one train or subsystem of the supported system is OPERABLE and supported by barriers capable of providing their related support function(s), and risk is assessed and managed. This specification may be concurrently applied to more than one train or subsystem of a multiple train or subsystem supported system provided at least one train or subsystem of the supported system is OPERABLE and the barriers supporting each of these trains or subsystems provide their related support function(s) for different categories of initiating events.

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

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

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1

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

SR 3.0.2

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

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

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

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3

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

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

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

3.0 SR APPLICABILITY

SR 3.0.4

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

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

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

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

APPLICABILITY: MODES 3, 4, and 5.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify SDM greater than or equal to the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Reactivity Balance

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	----------NOTES---------- 1. The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 effective full power days (EFPD) after each fuel loading. 2. This Surveillance is not required to be performed prior to entry into MODE 2. ----------	
	Verify measured core reactivity balance is within ± 1% $\Delta k/k$ of predicted values.	Once prior to entering MODE 1 after each fuel loading AND ---------NOTE-------- Only required after 60 EFPD ---------- In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Moderator Temperature Coefficient (MTC)

LCO 3.1.3 The MTC shall be non-positive whenever THERMAL POWER is $\geq$ 95% RTP and shall be less positive than 0.9×10^{-4} $\Delta k/k/°F$ whenever THERMAL POWER is < 95% RTP.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Verify MTC is within the limits.	Once prior to entering MODE 1 after each fuel loading

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 CONTROL ROD Group Alignment Limits

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CONTROL ROD inoperable, or not aligned to within 6.5% of its group average height, or both.	A.1.1	Verify SDM to be within the limit provided in the COLR.	1 hour AND Once per 12 hours thereafter
	OR		
	A.1.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	A.2.1	Restore CONTROL ROD alignment.	2 hours
	OR		
	A.2.2.1	Reduce THERMAL POWER to $\leq$ 60% of the ALLOWABLE THERMAL POWER.	2 hours
	AND		
	A.2.2.2	Verify the potential ejected rod worth is within the assumptions of the rod ejection analysis.	72 hours
	AND		

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2.3 ----------NOTE---------- Only required when THERMAL POWER is > 20% RTP. ---------- Perform SR 3.2.5.1.	 72 hours
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3.	6 hours
C. More than one CONTROL ROD inoperable, or not aligned within 6.5% of its group average height, or both.	C.1.1 Verify SDM to be within the limit provided in the COLR. OR C.1.2 Initiate boration to restore SDM to within limit. AND C.2 Be in MODE 3.	1 hour 1 hour 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify individual CONTROL ROD positions are within 6.5% of their group average height.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.2	Verify CONTROL ROD freedom of movement for each individual CONTROL ROD that is not fully inserted.	In accordance with the Surveillance Frequency Control Program

	SURVEILLANCE	FREQUENCY
SR 3.1.4.3	----------NOTE---------- With rod drop times determined with at least one but less than four reactor coolant pumps operating, operation may proceed provided operation is restricted to the pump combination operating during the rod drop time determination or pump combinations providing less total reactor coolant flow. ---------- Verify the rod drop time for each CONTROL ROD, from the fully withdrawn position, is $\leq$ 1.66 seconds from power interruption at the CONTROL ROD drive breakers to ¾ insertion (25% withdrawn position) with Tavg $\geq$ 525°F.	Once prior to reactor criticality after each removal of the reactor vessel head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Safety Rod Insertion Limits

LCO 3.1.5 Each safety rod shall be fully withdrawn.

---NOTE---

Not required for any safety rod inserted to perform SR 3.1.4.2.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One safety rod not fully withdrawn.	A.1.1	Verify SDM to be within the limit provided in the COLR.	1 hour
	OR		
	A.1.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	A.2	Declare the rod inoperable.	1 hour
B. More than one safety rod not fully withdrawn.	B.1.1	Verify SDM to be within the limit provided in the COLR.	1 hour
	OR		
	B.1.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	B.2	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each safety rod is fully withdrawn.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 AXIAL POWER SHAPING ROD (APSR) Alignment Limits

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One APSR inoperable, or not aligned to within 6.5% of its group average height, or both.	A.1 Perform SR 3.2.5.1.	2 hours AND 2 hours after each APSR movement
B. Require Action and associated Completion Time not met.	B.1 Be in MODE 3	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify position of each APSR is within 6.5% of the group average height.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Position Indicator Channels

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

Separate Condition entry is allowed for each CONTROL ROD and APSR.

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Perform CHANNEL CHECK of required position indicator channel.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.2	Perform CHANNEL CALIBRATION of required position indicator channel.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 PHYSICS TESTS Exceptions - MODE 1

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

LCO 3.1.4, "CONTROL ROD Group Alignment Limits";
LCO 3.1.5, "Safety Rod Insertion Limits";
LCO 3.1.6, "AXIAL POWER SHAPING ROD (APSR) Alignment Limits";
LCO 3.2.1, "Regulating Rod Insertion Limits," for the restricted operation region only;
LCO 3.2.2, "AXIAL POWER SHAPING ROD (APSR) Insertion Limits";
LCO 3.2.3, "AXIAL POWER IMBALANCE Operating Limits"; and
LCO 3.2.4, "QUADRANT POWER TILT (QPT)"

may be suspended, provided:

a. THERMAL POWER is maintained ≤ 85% RTP;

b. Nuclear overpower trip setpoint is ≤ 10% RTP higher than the THERMAL POWER at which the test is performed, with a maximum setting of 90% RTP;

c. ----------NOTE----------
Only required when THERMAL POWER is > 20% RTP.

Linear Heat Rate (LHR) is maintained within the limits specified in the COLR; and

d. SDM is within the limits provided in the COLR.

APPLICABILITY: MODE 1 during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. SDM not within limit.	A.1	Initiate boration to restore SDM to within limit.	15 minutes
	AND		
	A.2	Suspend PHYSICS TESTS exceptions.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. THERMAL POWER > 85% RTP. OR Nuclear overpower trip setpoint > 10% higher than PHYSICS TESTS power level. OR Nuclear overpower trip setpoint > 90% RTP. OR ----------NOTE---------- Only required when THERMAL POWER is > 20% RTP. --- LHR not within limits.	B.1 Suspend PHYSICS TESTS exceptions.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	Verify THERMAL POWER is ≤ 85% RTP.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE		FREQUENCY
SR 3.1.8.2	----------NOTE---------- Only required when THERMAL POWER is > 20% RTP. ----------	
	Perform SR 3.2.5.1.	In accordance with the Surveillance Frequency Control Program
SR 3.1.8.3	Verify nuclear overpower trip setpoint ≤ 10% RTP higher than the THERMAL POWER at which the test is performed, with a maximum setting of 90% RTP.	Within 8 hours prior to performance of PHYSICS TESTS at each test plateau
SR 3.1.8.4	Verify SDM to be within the limits provided in the COLR.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.9 PHYSICS TESTS Exceptions - MODE 2

LCO 3.1.9 During performance of PHYSICS TESTS, the requirements of

LCO 3.1.3, "Moderator Temperature Coefficient (MTC)";
LCO 3.1.4, "CONTROL ROD Group Alignment Limits";
LCO 3.1.5, "Safety Rod Insertion Limits";
LCO 3.1.6, "AXIAL POWER SHAPING ROD (APSR) Alignment Limits";
LCO 3.2.1, "Regulating Rod Insertion Limits";
LCO 3.2.2, "AXIAL POWER SHAPING ROD (APSR) Insertion Limits"; and
LCO 3.4.2, "RCS Minimum Temperature for Criticality"

may be suspended, provided:

a. THERMAL POWER is $\leq$ 5% RTP;

b. Nuclear overpower trip setpoint is set to $\leq$ 5% RTP;

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

d. SDM is within the limits provided in the COLR.

APPLICABILITY: During PHYSICS TESTS initiated in MODE 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. THERMAL POWER not within limit.	A.1	Open control rod drive trip breakers.	Immediately
B. SDM not within limit.	B.1	Initiate boration to restore SDM to within limit.	15 minutes
	AND		
	B.2	Suspend PHYSICS TESTS exceptions.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Nuclear overpower trip setpoint is not within limit. OR Nuclear instrumentation high startup rate CONTROL ROD withdrawal inhibit inoperable.	C.1 Suspend PHYSICS TESTS exceptions.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.9.1	Verify THERMAL POWER is ≤ 5% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.1.9.2	Verify nuclear overpower trip setpoint is ≤ 5% RTP.	Within 8 hours prior to performance of PHYSICS TESTS
SR 3.1.9.3	Verify SDM to be within the limit provided in the COLR.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.1 Regulating Rod Insertion Limits

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

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Regulating rod groups inserted in restricted operation region.	A.1	---NOTE--- Only required when THERMAL POWER is > 20% RTP. --- Perform SR 3.2.5.1.	Once per 2 hours
	AND		
	A.2	Restore regulating rod groups to within acceptable region.	24 hours from discovery of failure to meet the LCO
B. Required Action and associated Completion Time of Condition A not met.	B.1	Reduce THERMAL POWER to less than or equal to THERMAL POWER allowed by regulating rod group insertion limits.	2 hours
C. Regulating rod groups sequence or overlap requirements not met.	C.1	Restore regulating rod groups to within limits.	4 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Regulating rod groups inserted in unacceptable operation region.	D.1 Initiate boration to restore SDM to within the limit provided in the COLR. AND D.2.1 Restore regulating rod groups to within restricted operation region. OR D.2.2 Reduce THERMAL POWER to less than or equal to the THERMAL POWER allowed by the regulating rod group insertion limits.	15 minutes 2 hours 2 hours
E. Required Actions and associated Completion Times of Conditions C or D not met.	E.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	Verify regulating rod groups are within the sequence and overlap limits as specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.2.1.2	Verify regulating rod groups meet the insertion limits as specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.2.1.3	Verify SDM ≥ 1% Δk/k.	Within 4 hours prior to achieving criticality

3.2 POWER DISTRIBUTION LIMITS

3.2.2 AXIAL POWER SHAPING ROD (APSR) Insertion Limits

LCO 3.2.2 APSRs shall be positioned within the limits specified in the COLR.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. APSRs not within limits.	A.1	----------NOTE---------- Only required when THERMAL POWER is > 20% RTP. ---------- Perform SR 3.2.5.1.	Once per 2 hours
	AND		
	A.2	Restore APSRs to within limits.	24 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify APSRs are within acceptable limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.3 AXIAL POWER IMBALANCE Operating Limits

LCO 3.2.3 AXIAL POWER IMBALANCE shall be maintained within the limits specified in the COLR.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. AXIAL POWER IMBALANCE not within limits.	A.1 Perform SR 3.2.5.1. AND A.2 Reduce AXIAL POWER IMBALANCE to within limits.	Once per 2 hours 24 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ 40% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify AXIAL POWER IMBALANCE is within limits as specified in the COLR.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.4 QUADRANT POWER TILT (QPT)

LCO 3.2.4 QPT shall be maintained less than or equal to the steady state limits specified in the COLR.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. QPT greater than the steady state limits specified in the COLR.	A.1.1 Perform SR 3.2.5.1. OR	Once per 2 hours
	A.1.2.1 Reduce THERMAL POWER ≥ 2% RTP from the ALLOWABLE THERMAL POWER for each 1% of QPT greater than the steady state limit. AND	2 hours OR 2 hours after last performance of SR 3.2.5.1
	A.1.2.2 Reduce nuclear overpower based on Reactor Coolant System flow and AXIAL POWER IMBALANCE trip setpoint ≥ 2% RTP from the ALLOWABLE THERMAL POWER for each 1% of QPT greater than the steady state limit. AND	10 hours OR 10 hours after last performance of SR 3.2.5.1

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.1.2.3	Reduce the regulating group insertion limits given in the COLR ≥ 2% RTP from the ALLOWABLE THERMAL POWER for each 1% of QPT greater than the steady state limit.	10 hours OR 10 hours after last performance of SR 3.2.5.1
	AND		
	A.1.2.4	Reduce the Operational Power Imbalance Setpoints given in the COLR ≥ 2% RTP from the ALLOWABLE THERMAL POWER for each 1% of QPT greater than the steady state limit.	10 hours OR 10 hours after last performance of SR 3.2.5.1
	AND		
	A.2	Restore QPT to less than or equal to the steady state limit.	24 hours from discovery of failure to meet the LCO
B. Required Action and associated Completion Time of Condition A not met.	B.1	Reduce THERMAL POWER to < 60% of the ALLOWABLE THERMAL POWER.	2 hours
	AND		
	B.2	Reduce nuclear overpower trip setpoint to ≤ 65.5% of the ALLOWABLE THERMAL POWER.	10 hours
C. Required Action and associated Completion Time for Condition B not met.	C.1	Reduce THERMAL POWER to ≤ 20% RTP.	4 hours
D. QPT greater than the maximum limit specified in the COLR.	D.1	Reduce THERMAL POWER to ≤ 20% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	Verify QPT is within limits as specified in the COLR.	In accordance with the Surveillance Frequency Control Program AND When QPT has been restored to less than or equal to the steady state limit, 1 hour for 12 consecutive hours, or until verified acceptable at ≥ 95% RTP

3.2 POWER DISTRIBUTION LIMITS

3.2.5 Power Peaking

LCO 3.2.5 Linear Heat Rate (LHR) shall be within the limits specified in the COLR.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.5.1	----------NOTE---------- Only required to be performed when specified in LCO 3.1.8, "PHYSICS TESTS Exceptions – MODE 1," or when complying with Required Actions of LCO 3.1.4, "CONTROL ROD Group Alignment Limits"; LCO 3.1.6, "AXIAL POWER SHAPING ROD (APSR) Alignment Limits"; LCO 3.2.1, "Regulating Rod Insertion Limits"; LCO 3.2.2, "AXIAL POWER SHAPING ROD (APSR) Insertion Limits"; LCO 3.2.3, "AXIAL POWER IMBALANCE Operating Limits"; LCO 3.2.4, "QUADRANT POWER TILT (QPT)." ----------	
	Verify LHR is within limits by using the Incore Detector System to obtain a power distribution map.	As specified by the applicable LCO(s)

3.3 INSTRUMENTATION

3.3.1 Reactor Protection System (RPS) Instrumentation

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

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Place channel in bypass or trip. OR A.2 Prevent bypass of remaining channels.	1 hour 1 hour
B. Two channels inoperable.	B.1 Place one channel in trip. AND B.2.1 Place second channel in bypass. OR B.2.2 Prevent bypass of remaining channels.	1 hour OR In accordance with the Risk Informed Completion Time Program 1 hour 1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Three or more channels inoperable. OR Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.1-1 for the Function.	Immediately
D. As required by Required Action C.1 and referenced in Table 3.3.1-1.	D.1 Be in MODE 3. AND D.2 Open all control rod drive (CRD) trip breakers.	6 hours 6 hours
E. As required by Required Action C.1 and referenced in Table 3.3.1-1.	E.1 Open all CRD trip breakers.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.1-1.	F.1 Reduce THERMAL POWER < 45% RTP.	6 hours
G. As required by Required Action C.1 and referenced in Table 3.3.1-1.	G.1 Reduce THERMAL POWER < 10% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

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

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2	----------NOTES---------- 1. Adjust power range channel output if the absolute difference is > 2% RTP. 2. Not required to be performed until 24 hours after THERMAL POWER is ≥ 20% RTP. --- Compare results of calorimetric heat balance calculation to power range channel output.	In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after a THERMAL POWER change of ≥ 10% RTP
SR 3.3.1.3	----------NOTES---------- 1. Adjust the power range channel imbalance output if the absolute value of the imbalance error is ≥ 2% RTP. 2. Not required to be performed until 24 hours after THERMAL POWER is ≥ 20% RTP. --- Compare results of out of core measured AXIAL POWER IMBALANCE to incore measured AXIAL POWER IMBALANCE.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE		FREQUENCY
SR 3.3.1.4	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.5	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.1-1
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Nuclear Overpower – a. High Setpoint	1,2[(a)],3[(d)]	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.4 SR 3.3.1.5	≤ 104.9% RTP
b. Low Setpoint	2[(b)],3[(b)] 4[(b)],5[(b)]	E	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ 5% RTP
2. RCS High Outlet Temperature	1,2	D	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ 618 °F
3. RCS High Pressure	1,2[(a)],3[(d)]	D	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ 2355 psig
4. RCS Low Pressure	1,2[(a)]	D	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≥ 1800 psig
5. RCS Variable Low Pressure	1,2[(a)]	D	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	As specified in the COLR
6. Reactor Building High Pressure	1,2,3[(c)]	D	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ 18.7 psia
7. Reactor Coolant Pump to Power	1,2[(a)]	D	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ 55% RTP with one pump operating in each loop.
8. Nuclear Overpower RCS Flow and Measured AXIAL POWER IMBALANCE	1,2[(a)]	D	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5	As specified in the COLR
9. Main Turbine Trip (Hydraulic Oil Pressure)	≥ 45% RTP	F	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≥ 700 psig
10. Loss of Main Feedwater Pumps (Control Oil Pressure)	≥ 10% RTP	G	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≥ 55.5 psig
11. Shutdown Bypass RCS High Pressure	2[(b)],3[(b)] 4[(b)],5[(b)]	E	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.5	≤ 1720 psig

(a) When not in shutdown bypass operation.
(b) During shutdown bypass operation with any CRD trip breaker in the closed position and the CRD System capable of rod withdrawal.
(c) With any CRD trip breaker in the closed position and the CRD System capable of rod withdrawal.
(d) With any CRD trip breaker in the closed position, the CRD system capable of rod withdrawal, and not in shutdown bypass operation.

3.3 INSTRUMENTATION

3.3.2 Reactor Protection System (RPS) Manual Reactor Trip

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.3 INSTRUMENTATION

3.3.3 Reactor Protection System (RPS) - Reactor Trip Module (RTM)

LCO 3.3.3 Four RTMs shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One RTM inoperable.	A.1.1	Open the associated CRD trip breaker.	1 hour
	OR		
	A.1.2	Remove power from the associated CRD trip breaker.	1 hour
	AND		
	A.2	Physically remove the inoperable RTM.	1 hour
B. Two or more RTMs inoperable in MODE 1, 2, or 3.	B.1	Be in MODE 3.	6 hours
	AND		
OR	B.2.1	Open all CRD trip breakers.	6 hours
	OR		
Required Action and associated Completion Time not met in MODE 1, 2, or 3.	B.2.2	Remove power from all CRD trip breakers.	6 hours

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.4 Control Rod Drive (CRD) Trip Devices

LCO 3.3.4 The following CRD trip devices shall be OPERABLE:

a. Two AC CRD trip breakers;

b. Two DC CRD trip breaker pairs; and

c. Eight electronic trip assembly (ETA) relays.

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

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more CRD trip breaker(s) or breaker pair undervoltage or shunt trip Functions inoperable.	A.1	Open the CRD trip breaker.	48 hours
	OR		
	A.2	Remove power from the CRD trip breaker.	48 hours
B. One or more CRD trip breaker(s) or breaker pair inoperable for reasons other than those in Condition A.	B.1	Open the CRD trip breaker.	1 hour
	OR		
	B.2	Remove power from the CRD trip breaker.	1 hour

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more required ETA relays inoperable.	C.1	Transfer affected CONTROL ROD group to power supply with OPERABLE or open ETA relays.	1 hour
	OR		
	C.2	Transfer affected CONTROL ROD group to a DC hold power supply.	1 hour
	OR		
	C.3	Place the SCRs associated with the inoperable ETA relay in trip.	1 hour
	OR		
	C.4	Open corresponding AC CRD trip breaker.	1 hour
D. Required Action and associated Completion Time not met in MODE 1, 2, or 3.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2.1	Open all CRD trip breakers.	6 hours
	OR		
	D.2.2	Remove power from all CRD trip breakers.	6 hours
E. Required Action and associated Completion Time not met in MODE 4 or 5.	E.1	Open all CRD trip breakers.	6 hours
	OR		
	E.2	Remove power from all CRD trip breakers.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.5 Engineered Safeguards Actuation System (ESAS) Instrumentation

LCO 3.3.5 Three ESAS analog instrument channels for each Parameter in Table 3.3.5-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Parameters with one analog instrument channel inoperable.	A.1 Place analog instrument channel in trip.	1 hour OR In accordance with the Risk Informed Completion Time Program
B. One or more Parameters with more than one analog instrument channel inoperable. OR Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 ----------NOTE---------- Only required for RCS Pressure - Low setpoint. ---------- Reduce RCS pressure < 1750 psig. AND	6 hours 36 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 ----------NOTES---------- 1. Only required for Reactor Building Pressure High setpoint and High High setpoint. 2. LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5-1
Engineered Safeguards Actuation System Instrumentation

	PARAMETER	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	ALLOWABLE VALUE
1.	Reactor Coolant System Pressure - Low Setpoint	≥ 1750 psig	≥ 1585 psig
2.	Reactor Building (RB) Pressure - High Setpoint	1,2,3,4	≤ 18.7 psia
3.	RB Pressure - High High Setpoint	1,2,3,4	≤ 44.7 psia

3.3 INSTRUMENTATION

3.3.6 Engineered Safeguards Actuation System (ESAS) Manual Initiation

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

a. High Pressure Injection (channels 1 and 2);
b. Low Pressure Injection (channels 3 and 4);
c. Reactor Building (RB) Cooling (channels 5 and 6); and
d. RB Spray (channels 7 and 8).

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more ESAS Functions with one channel inoperable.	A.1 Restore channel to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.7 Engineered Safeguards Actuation System (ESAS) Actuation Logic

LCO 3.3.7 The ESAS digital actuation logic channels shall be OPERABLE.

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

ACTIONS

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

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform digital actuation logic CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.8 Diesel Generator (DG) Loss of Power Start (LOPS)

LCO 3.3.8 Two loss of voltage Function relays and two degraded voltage Function relays DG LOPS instrumentation per DG shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more relays for one or more DGs inoperable.	A.1 Restore relay(s) to OPERABLE status.	1 hour OR ---------NOTE--------- Not applicable when a loss of safety function exists. ---------- In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Declare affected DG(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2	----------NOTE---------- When DG LOPS instrumentation is placed in an inoperable status solely for performance of this Surveillance, entry into associated Conditions and Required Actions may be delayed up to 4 hours for the loss of voltage Function, provided the one remaining relay monitoring the Function for the bus is OPERABLE. ----------	
	Perform CHANNEL CALIBRATION with setpoint Allowable Value as follows: a. Degraded voltage ≥ 423.2 V and ≤ 436.0 V with a time delay of 8 seconds ± 1 second; and b. Loss of voltage ≥ 3251.5 V and ≤ 3349.5 V with a time delay of ≥ 2.0 seconds and ≤ 2.6 seconds.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.9 Source Range Neutron Flux

LCO 3.3.9 One source range neutron flux channel shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Required source range neutron flux channel inoperable with ≤ 1E-10 amp on the intermediate range neutron flux channel.	----------NOTE---------- Plant temperature changes are allowed provided the temperature change is accounted for in the SDM calculations. ----------		
	A.1	Suspend operations involving positive reactivity changes.	Immediately
	AND		
	A.2	Initiate action to insert all CONTROL RODS.	Immediately
	AND		
	A.3	Open control rod drive trip breakers.	1 hour
	AND		
	A.4	Verify SDM to be within the limit provided in the COLR.	1 hour AND Once per 12 hours thereafter
B. Required source range neutron flux channel inoperable with > 1E-10 amp on the intermediate range neutron flux channel.	B.1	Initiate action to restore required channel to OPERABLE status.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.9.2	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ----------	
	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.10 Intermediate Range Neutron Flux

LCO 3.3.10 One intermediate range neutron flux channel shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required channel inoperable.	----------NOTE---------- Plant temperature changes are allowed provided the temperature change is accounted for in the SDM calculations. ----------	
	A.1 Suspend operations involving positive reactivity changes.	Immediately
	AND	
	A.2 Open CRD trip breakers.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.10.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.10.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE		FREQUENCY
SR 3.3.10.3	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ----------	
	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.11 Emergency Feedwater Initiation and Control (EFIC) System Instrumentation

LCO 3.3.11 The EFIC System instrumentation channels for each Function in Table 3.3.11-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.11-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Emergency Feedwater (EFW) Initiation or Main Steam Line Isolation Functions listed in Table 3.3.11-1 with one channel inoperable.	A.1 Place channel(s) in bypass or trip.	1 hour
B. One or more EFW Initiation or Main Steam Line Isolation Functions listed in Table 3.3.11-1 with two channels inoperable.	B.1 Place one channel in bypass. AND B.2 Place second channel in trip.	1 hour 1 hour OR In accordance with the Risk Informed Completion Time Program

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One EFW Vector Valve Control channel inoperable.	C.1 Restore channel to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
D. Required Action and associated Completion Time not met for Function 1.b.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 12 hours
E. Required Action and associated Completion Time not met for Function 1.a or 1.d.	E.1 Reduce THERMAL POWER to ≤ 10% RTP.	6 hours
F. Required Action and associated Completion Time not met for Functions 1.c, 2, or 3.	F.1 Be in MODE 3. AND F.2 Reduce steam generator pressure to < 750 psig.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

----------NOTE----------
Refer to Table 3.3.11-1 to determine which SRs shall be performed for each EFIC Function.

SURVEILLANCE		FREQUENCY
SR 3.3.11.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.11.2	Perform CHANNEL FUNCTIONAL TEST.(Notes 1 & 2)	In accordance with the Surveillance Frequency Control Program
SR 3.3.11.3	Perform CHANNEL CALIBRATION.(Notes 1 & 2)	In accordance with the Surveillance Frequency Control Program

The following notes apply only to the SG Level – Low function:

Note 1: If the as-found channel setpoints are conservative with respect to the Allowable Value but outside their predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoints are not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Note 2: The instrument channel setpoint(s) shall be reset to a value that is equal to or more conservative than the Limiting Trip Setpoint; otherwise, the channel shall be declared inoperable. The Limiting Trip Setpoint and the methodology used to determine the Limiting Trip Setpoint and the predefined as-found acceptance criteria band are specified in the Bases.

Table 3.3.11-1
Emergency Feedwater Initiation and Control System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUES
1. EFW Initiation				
a. Loss of MFW Pumps (Control Oil Pressure)	≥ 10% RTP	4	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≥ 55.5 psig
b. SG Level - Low	1,2,3	4 per SG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≥ 9.34 inches[c,d]
c. SG Pressure - Low	1,2,3[a]	4 per SG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≥ 584.2 psig
d. RCP Status	≥ 10% RTP	4	SR 3.3.11.1 SR 3.3.11.2	NA
2. EFW Vector Valve Control				
a. SG Pressure – Low	1,2,3[a]	4 per SG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≥ 584.2 psig
b. SG Differential Pressure – High	1,2,3[e]	4	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≤ 150 psid
3. Main Steam Line Isolation				
a. SG Pressure – Low	1,2,3[a][b]	4 per SG	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3	≥ 584.2 psig

(a) When SG pressure ≥ 750 psig.

(b) Except when all associated valves are closed and deactivated.

(c) The SG Level – Low "Limiting Trip Setpoint" in accordance with NRC letter dated September 7, 2005, *Technical Specification For Addressing Issues Related To Setpoint Allowable Values*, is ≥ 10.42 inches.

(d) Includes an actuation time delay of ≤ 10.4 seconds.

3.3 INSTRUMENTATION

3.3.12 Emergency Feedwater Initiation and Control (EFIC) Manual Initiation

LCO 3.3.12 Two manual initiation switches per actuation train for each of the following EFIC Functions shall be OPERABLE:

a. Steam generator (SG) A Main Steam Line Isolation;

b. SG B Main Steam Line Isolation; and

c. Emergency Feedwater (EFW) Initiation.

APPLICABILITY: When associated EFIC Function is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more EFIC Function(s) with one required manual initiation switch inoperable in one actuation train.	A.1 Place affected trip bus in the affected train for the associated EFIC Function(s) in trip.	72 hours OR In accordance with the Risk Informed Completion Time Program
B. One or more EFIC Function(s) with both required manual initiation switches inoperable in a single actuation train.	B.1 Restore one manual initiation switch for each of the affected EFIC Function(s) to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more EFIC Function(s) with one or both required manual initiation switches inoperable in both actuation trains.	C.1 Restore one actuation train for the associated EFIC Function(s) to OPERABLE status.	1 hour OR --------- NOTE ------- Not applicable when unable to manually initiate an EFIC Function. ---------- In accordance with the Risk Informed Completion Time Program
D. Required Action and associated Completion Time not met for EFW Initiation Function.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 12 hours
E. Required Action and associated Completion Time not met for Main Steam Line Isolation Function.	E.1 Be in MODE 3. AND E.2.1 Reduce steam generator pressure to < 750 psig. OR E.2.2 Close and deactivate all associated valves.	6 hours 12 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.12.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.13 Emergency Feedwater Initiation and Control (EFIC) Logic

LCO 3.3.13 Trains A and B of each Logic Function shown below shall be OPERABLE:

a. Main Steam Line Isolation; and

b. Emergency Feedwater (EFW) Initiation.

APPLICABILITY: When associated EFIC Function is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more train A Functions inoperable with all train B Functions OPERABLE; or one or more train B Functions inoperable with all train A Functions OPERABLE.	A.1 Restore affected train to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met for EFW Initiation Function.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met for Main Steam Line Isolation Function.	C.1 Be in MODE 3. AND C.2.1 Reduce steam generator pressure to < 750 psig. OR C.2.2 Close and deactivate all associated valves.	6 hours 12 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.13.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.14 Emergency Feedwater Initiation and Control (EFIC) Vector Logic.

LCO 3.3.14 Four channels of the EFIC vector logic shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 when steam generator pressure is ≥ 750 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One vector logic channel inoperable.	A.1 Restore channel to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Reduce steam generator pressure to < 750 psig.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.14.1	Perform a CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.15 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.15 The PAM instrumentation for each Function in Table 3.3.15-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to prepare and submit a Special Report.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.15-1 for the channel.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.15-1.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	6 hours 12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.15-1.	F.1 Initiate action to prepare and submit a Special Report.	Immediately

SURVEILLANCE REQUIREMENTS

----------NOTE----------
These SRs apply to each PAM instrumentation Function in Table 3.3.15-1.

SURVEILLANCE		FREQUENCY
SR 3.3.15.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program
SR 3.3.15.2	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION.	 In accordance with the Surveillance Frequency Control Program

Table 3.3.15-1
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1. Wide Range Neutron Flux	2	E
2. RCS Hot Leg Temperature	2	E
3. RCS Hot Leg Level	2	F
4. RCS Pressure (Wide Range)	2	E
5. Reactor Vessel Water Level	2	F
6. Reactor Building Water Level (Wide Range)	2	E
7. Reactor Building Pressure (Wide Range)	2	E
8. Penetration Flow Path Automatic Reactor Building Isolation Valve Position	2 per penetration flow path[(a)(b)]	E
9. Reactor Building Area Radiation (High Range)	2	F
10. Deleted		
11. Pressurizer Level	2	E
12. a. SG "A" Water Level – Low Range	2	E
b. SG "B" Water Level – Low Range	2	E
c. SG "A" Water Level – High Range	2	E
d. SG "B" Water Level – High Range	2	E
13. a. SG "A" Pressure	2	E
b. SG "B" Pressure	2	E
14. Condensate Storage Tank Level	2	E
15. Borated Water Storage Tank Level	2	E
16. Core Exit Temperature (CETs per quadrant)	2	E
17. a. Emergency Feedwater Flow to SG "A"	2	E
b. Emergency Feedwater Flow to SG "B"	2	E
18. High Pressure Injection Flow	2	E
19. Low Pressure Injection Flow	2	E
20. Reactor Building Spray Flow	2	E

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

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

3.3 INSTRUMENTATION

3.3.16 Control Room Isolation - High Radiation

LCO 3.3.16 Two channels of Control Room Isolation - High Radiation shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One channel inoperable in MODE 1, 2, 3, or 4.	A.1	Place one OPERABLE Control Room Emergency Ventilation System (CREVS) train in the emergency recirculation mode.	7 days
B. Two channels inoperable in MODE 1, 2, 3, or 4.	B.1	Place one OPERABLE CREVS train in the emergency recirculation mode.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours
D. One or two channels inoperable during movement of irradiated fuel.	D.1	Place one OPERABLE CREVS train in emergency recirculation mode.	Immediately
	OR		
	D.2	Suspend movement of irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.16.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.16.2	----------NOTE---------- When the Control Room Isolation – High Radiation instrumentation is placed in an inoperable status solely for performance of this Surveillance, entry into associated Conditions and Required Actions may be delayed for up to 3 hours. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.16.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

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

LCO 3.4.1 RCS DNB parameters (loop pressure, hot leg temperature, and RCS total flow rate) shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

----------NOTE----------
RCS loop pressure limit does not apply during pressure transients due to a THERMAL POWER change > 5% RTP per minute.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	----------NOTE---------- With three RCPs operating, the limits are applied to the loop with two RCPs in operation. --- Verify RCS loop pressure is within the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program

	SURVEILLANCE	FREQUENCY
SR 3.4.1.2	----------NOTE---------- With three RCPs operating, the limits are applied to the loop with two RCPs in operation. ---------- Verify RCS hot leg temperature is within the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.3	Verify RCS total flow is within the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.4	----------NOTE---------- Only required to be performed when stable thermal conditions are established at ≥ 90% RTP. ---------- Verify RCS total flow rate is within the limit specified in the COLR by measurement.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2 The RCS average temperature (T_{avg}) shall be ≥ 525 °F.

APPLICABILITY: MODE 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{avg} not within limit.	A.1 Be in MODE 3.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} ≥ 525 °F.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3 RCS pressure, RCS temperature, and RCS heatup and cooldown rates shall be maintained within limits specified in Figures 3.4.3-1, 3.4.3-2, and 3.4.3-3.

----------NOTE----------
Not applicable to the pressurizer.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS Pressure and Temperature not within criticality limit of Figure 3.4.3-1 during PHYSICS TESTS with RCS temperature ≤ 525°F.	A.1 Be in MODE 3.	30 minutes
B. ----------NOTE---------- Required Action B.2 shall be completed whenever this Condition is entered. ---------- Requirements of LCO not met in MODE 1, 2, 3, or 4.	B.1 Restore parameter(s) to within limits. AND B.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

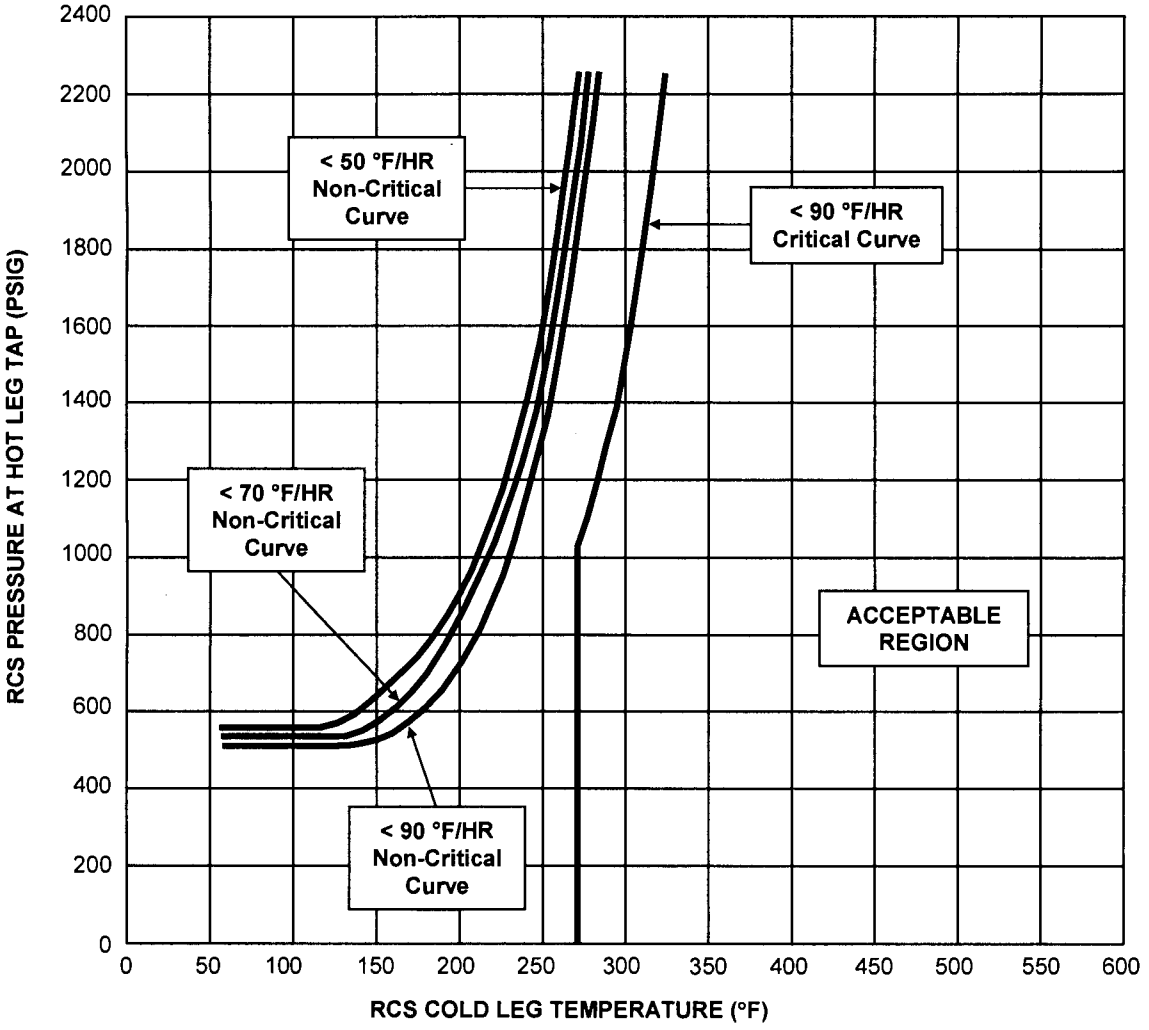
CONDITION	REQUIRED ACTION	COMPLETION TIME
D. ----------NOTE---------- Required Action D.2 shall be completed whenever this Condition is entered. ---------- Requirements of LCO not met in other than MODE 1, 2, 3, or 4.	D.1 Initiate action to restore parameter(s) to within limit. AND D.2 Determine RCS is acceptable for continued operation.	Immediately Prior to entering MODE 4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	----------NOTE---------- Only required to be performed during RCS heatup operations with fuel in the reactor vessel. ---------- Verify RCS pressure, RCS temperature, and RCS heatup rates are within the limits specified in Figure 3.4.3-1.	In accordance with the Surveillance Frequency Control Program
SR 3.4.3.2	----------NOTE---------- Only required to be performed during RCS cooldown operations with fuel in the reactor vessel. ---------- Verify RCS pressure, RCS temperature, and RCS cooldown rates are within the limits specified in Figure 3.4.3-2.	In accordance with the Surveillance Frequency Control Program

	SURVEILLANCE	FREQUENCY
SR 3.4.3.3	----------NOTE---------- Only required to be performed during RCS heatup and cooldown operations with no fuel in the reactor vessel. ---------- Verify RCS pressure, RCS temperature, and RCS cooldown rates are within the limits specified in Figure 3.4.3-3.	In accordance with the Surveillance Frequency Control Program
SR 3.4.3.4	----------NOTE---------- Only required to be performed during PHYSICS TESTS with RCS temperature ≤ 525 °F. ---------- Verify RCS pressure and RCS temperature are within the criticality limits specified in Figure 3.4.3-1.	In accordance with the Surveillance Frequency Control Program

FIGURE 3.4.3-1
RCS Heatup Limitations to 54 EFPY



Notes:

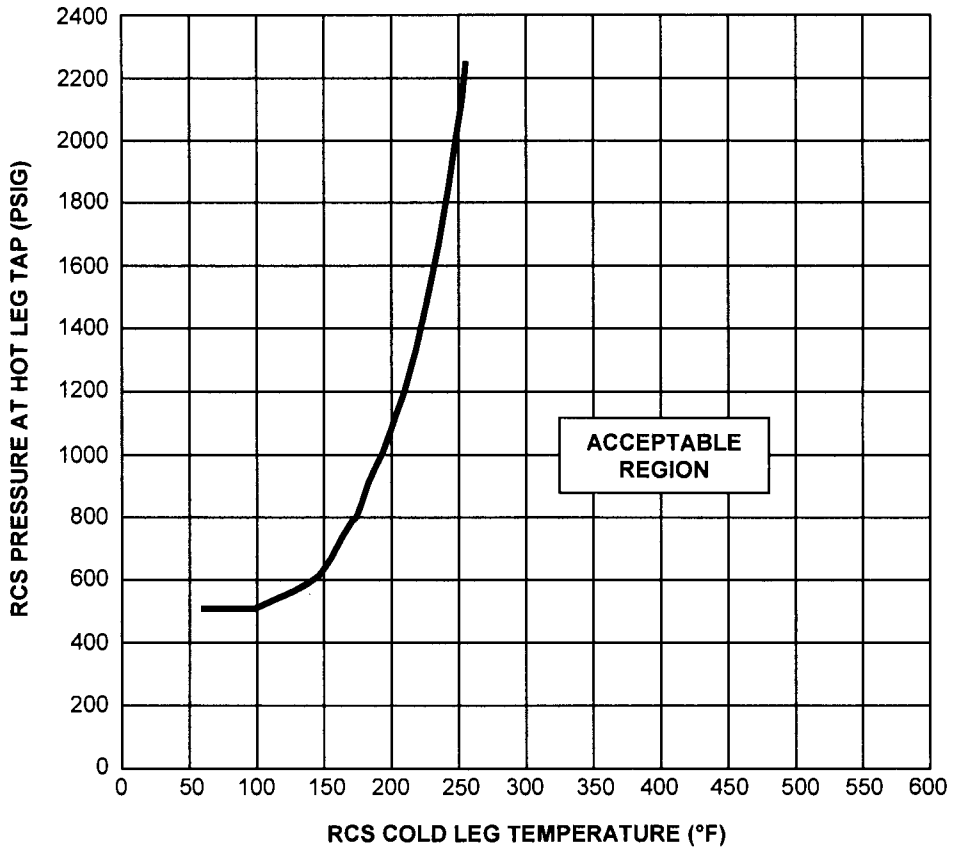
1. These curves are not adjusted for instrument error and shall not be used for operation.
2. When DHR is in operation with no RCPs operating, the DHR system return temperature shall be used.
3. RCP Operating Restrictions:

RCS TEMP	RCP RESTRICTIONS
T > 300 °F	None
300 °F ≥ T ≥ 225 °F	≤ 3
225 °F > T ≥ 84 °F	≤ 2
T < 84 °F	No RCPs operating

4. Allowable Heatup Rates:

RCS TEMP	H/U RATE
60 °F < T ≤ 84 °F	≤ 15 °F/HR
T > 84 °F	As allowed by applicable curve

FIGURE 3.4.3-2
RCS Cooldown Limits to 54 EFPY



Notes:

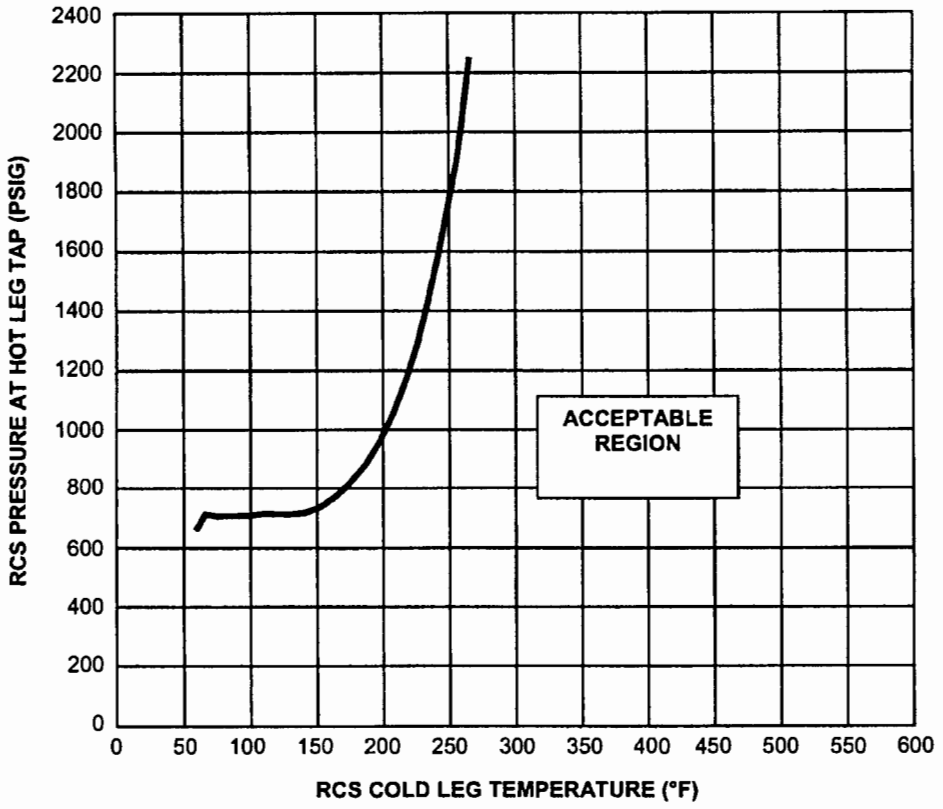
1. This curve is not adjusted for instrument error and shall not be used for operation.
2. A maximum step temperature change of 25 °F is allowable when securing all RCPs with the DHR system in operation. This change is defined as the RCS temperature prior to securing all the RCPs minus the DHR return temperature after the RCPs are secured. When DHR is in operation with no RCPs operating, the DHR system return temperature shall be used.
3. RCP Operating Restrictions:

RCS TEMP	RCP RESTRICTIONS
T > 255 °F	None
150 °F ≤ T ≤ 255 °F	≤ 2
T < 150 °F	No RCPs operating

4. Allowable Cooldown Rates:

RCS TEMP	C/D RATE	STEP CHANGE
T ≥ 280 °F	100 °F/HR	≤ 50 °F in any 1/2 HR
280 °F > T ≥ 150 °F	50 °F/HR	≤ 25 °F in any 1/2 HR
T < 150 °F	25 °F/HR	≤ 25 °F in any 1 HR

FIGURE 3.4.3-3
RCS Inservice Hydrostatic Test H/U & C/D Limits to 54 EFPY



Notes:

1. This curve is not adjusted for instrument error and shall not be used for operation.
2. All Notes on Figure 3.4.3-1 are applicable for heatups. This curve is based on a heatup rate of < 90 °F/HR.
3. All Notes on Figure 3.4.3-2 are applicable for cooldowns.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops – MODES 1 and 2

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

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

b. Three RCPs operating and THERMAL POWER restricted as specified in the COLR.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify required RCS loops are in operation.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODE 3

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

---NOTES---

All reactor coolant pumps (RCPs) may be removed from operation for ≤ 8 hours per 24 hour period for the transition to or from the Decay Heat Removal System, and all RCPs may be removed from operation for ≤ 1 hour per 8 hour period for any other reason, provided:

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

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

APPLICABILITY: MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RCS loop inoperable.	A.1 Restore RCS loop to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify required RCS loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.5.2	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power available to each required pump.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops – MODE 4

LCO 3.4.6 Two loops consisting of any combination of RCS loops and decay heat removal (DHR) loops shall be OPERABLE and one OPERABLE loop shall be in operation.

----------NOTE----------
All reactor coolant pumps (RCPs) and DHR pumps may be removed from operation for ≤ 1 hour provided:

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

b. Core outlet temperature is maintained at less than or equal to a temperature which is 10°F below saturation temperature.

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required loop inoperable.	A.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Initiate action to restore a second loop to OPERABLE status.	Immediately

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required DHR or RCS loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.6.2	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power available to each required pump.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7 One decay heat removal (DHR) loop shall be OPERABLE and in operation, and either:

a. One additional DHR loop shall be OPERABLE; or

b. The secondary side of each steam generator (SG) shall be $\geq$ 20 inches.

---NOTES---

1. The DHR pump of the loop in operation may be removed from operation for $\leq$ 1 hour provided:

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

   b. Core outlet temperature is maintained at less than or equal to a temperature which is 10°F below saturation temperature.

2. One required DHR loop may be inoperable for $\leq$ 2 hours for surveillance testing provided that the other DHR loop is OPERABLE and in operation.

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

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.7.1	Verify required DHR loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.2	Verify required SG secondary side water levels are ≥ 20 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.3	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ----------	
	Verify correct breaker alignment and indicated power available to each required DHR pump.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two decay heat removal (DHR) loops shall be OPERABLE and one OPERABLE DHR loop shall be in operation.

---NOTES---

1. All DHR pumps may be removed from operation for ≤ 1 hour provided:

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

   b. No draining operations to further reduce the RCS water volume are permitted.

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

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No required DHR loop OPERABLE. OR Required DHR loop not in operation.	B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. AND B.2 Suspend all operations involving reduction in RCS water volume. AND B.3 Initiate action to restore one DHR loop to OPERABLE status and operation.	Immediately Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify required DHR loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.8.2	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power available to each required DHR pump.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

a. Pressurizer water level ≤ 320 inches; and

b. A minimum of 126 kW of Engineered Safeguards (ES) bus powered pressurizer heaters OPERABLE.

----------NOTE----------
OPERABILITY requirements on pressurizer heaters do not apply in MODE 4.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with RCS temperature > 259 °F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limits.	A.1 Restore level to within limits.	1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4 with RCS temperature ≤ 259 °F.	6 hours 24 hours
C. Capacity of ES bus powered pressurizer heaters less than limit.	C.1 Restore pressurizer heater capacity.	72 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level ≤ 320 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2	Verify capacity of ES bus powered pressurizer heaters ≥ 126 kW.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 Two pressurizer safety valves shall be OPERABLE.

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

1. Only one pressurizer safety valve is required to be OPERABLE in MODE 3, and in MODE 4 with RCS temperature > 259 °F.
2. The lift settings are not required to be within limits for entry into MODE 3 or the applicable portions of MODE 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 36 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.
3. Not applicable in MODE 3, and in MODE 4 with RCS temperature > 259 °F during hydrostatic tests in accordance with ASME Boiler and Pressure Vessel Code, Section III.
4. The provisions of LCO 3.0.3 are not applicable in MODE 3, and in MODE 4 with RCS temperature > 259 °F.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with RCS temperature > 259 °F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable in MODES 1 or 2.	A.1 Restore valve to OPERABLE status.	15 minutes
B. Required Action and associated Completion Time of Condition A not met. OR Two pressurizer safety valves inoperable in MODES 1 or 2.	B.1 Be in MODE 3.	6 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required pressurizer safety valve inoperable in MODE 3 or MODE 4 with RCS temperature > 259 °F.	C.1 Be in MODE 4 with RCS temperature ≤ 259 °F.	18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify each required pressurizer safety valve is OPERABLE in accordance with the INSERVICE TESTING PROGRAM. Following testing, as-left lift settings shall be within ± 1%.	In accordance with the INSERVICE TESTING PROGRAM

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Low Temperature Overpressure Protection (LTOP) System

LCO 3.4.11 An LTOP System shall be OPERABLE with high pressure injection (HPI) deactivated and the core flood tanks (CFTs) isolated and:

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

1. HPI deactivation and CFT isolation not applicable during ASME Section XI testing.
2. HPI deactivation not applicable during fill and vent of the RCS.
3. HPI deactivation not applicable during emergency RCS makeup.
4. HPI deactivation not applicable during valve maintenance.
5. CFT isolation is only required when CFT pressure is greater than or equal to the maximum RCS pressure for the existing RCS temperature allowed by the pressure and temperature curves provided in LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits."

---

a. Pressurizer level such that the unit is not in a water solid condition and an OPERABLE electromatic relief valve (ERV) with a setpoint of ≤ 508 psig; or

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

1. Pressurizer level not applicable as allowed by Emergency Operating Procedures.
2. Pressurizer level not applicable during system hydrotest.

---

b. The RCS depressurized and the RCS open.

APPLICABILITY: MODE 4 with RCS temperature ≤ 259 °F,
MODE 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer level not within required limits.	A.1 Restore pressurizer level to within required limits.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Close and maintain closed the makeup control valve and its associated isolation valve. AND B.2 Stop RCS heatup.	12 hours 12 hours
C. Required Electromatic Relief Valve (ERV) inoperable.	C.1 Restore required ERV to OPERABLE status.	1 hour
D. Required Action and associated Completion Time of Condition C not met.	D.1 Reduce makeup tank level to ≤ 73 inches.	12 hours
E. LCO requirements not met for any reason other than Condition A through Condition D.	E.1 Initiate action to restore compliance with LCO requirements.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.11.1	Verify pressurizer level does not represent a water solid condition.	30 minutes during RCS heatup and cooldown AND In accordance with the Surveillance Frequency Control Program
SR 3.4.11.2	Verify HPI is deactivated.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.3	Verify each pressurized CFT is isolated.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.4	----------NOTE---------- Verification of locked, sealed, or otherwise secured open vent path(s) only required to be performed every 31 days. ---------- Verify OPERABLE pressure relief capability.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.5	Perform CHANNEL CALIBRATION of ERV opening circuitry.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 RCS Specific Activity

LCO 3.4.12 RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 specific activity shall be within limits.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 not within limit.	----------NOTE---------- LCO 3.0.4.c is applicable. ----------	
	A.1 Verify DOSE EQUIVALENT I-131 ≤ 6 µCi/gm.	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. DOSE EQUIVALENT XE-133 not within limit.	----------NOTE---------- LCO 3.0.4.c is applicable. ----------	
	B.1 Restore DOSE EQUIVALENT XE-133 to within limit.	48 hours
C. Required Action and associated Completion Time of Condition A or B not met. OR DOSE EQUIVALENT I-131 > 6 µCi/gm.	C.1 Be in MODE 3.	6 hours
	AND	
	C.2 Be in MODE 5	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	----------NOTE---------- Only required to be performed in MODE 1 and 2, MODE 3 with RCS average temperature ≥ 500 °F. ---------- Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity ≤ 2200 µCi/gm.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.2	Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 0.25 µCi/gm.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

a. No pressure boundary LEAKAGE;

b. 1 gpm unidentified LEAKAGE;

c. 10 gpm identified LEAKAGE; and

d. 39 gallons per day primary to secondary LEAKAGE through any one Steam Generator (SG).

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressure boundary LEAKAGE exists.	A.1 Isolate affected component, pipe, or vessel from the RCS by use of a closed manual valve, closed and de-activated automatic valve, blind flange, or check valve.	4 hours
B. RCS unidentified or identified LEAKAGE not within limits, except for primary to secondary LEAKAGE.	B.1 Reduce LEAKAGE to within limits.	18 hours
C. Required Action and associated Completion Time not met. OR Primary to secondary LEAKAGE not within limit.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	----------NOTES---------- 1. Not required to be performed until 12 hours after establishment of steady state operation at or near operating pressure. 2. Not applicable to primary to secondary LEAKAGE. --- Verify RCS operational LEAKAGE is within limits by performance of an RCS water inventory balance.	In accordance with the Surveillance Frequency Control Program
SR 3.4.13.2	----------NOTE---------- Not required to be performed until 12 hours after establishment of steady state operation. --- Verify primary to secondary LEAKAGE is $\leq$ 39 gallons per day through any one SG.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.14 Leakage from each PIV shall be within limits.

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

ACTIONS

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

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

2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable pressure isolation function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more flow paths with leakage from one or more RCS pressure isolation check valves not within limit.	A.1	Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed deactivated automatic valve and one OPERABLE check valve.	4 hours
B. Required Decay Heat Removal (DHR) System autoclosure interlock function inoperable.	B.1	Isolate the affected penetration by use of one closed manual or deactivated automatic valve.	4 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	----------NOTE---------- Not required to be performed in MODES 3 and 4. ---------- Verify leakage from each RCS pressure isolation check valve, or pair of check valves, as applicable, is less than or equal to an equivalent of the Allowable Leakage Limit identified below at a differential test pressure ≥ 150 psid. Pressure Isolation Check Valve(s) / Allowable Leakage Limit DH-14A: ≤ 5 gpm DH-13A and DH-17: ≤ 5 gpm total DH-14B: ≤ 5 gpm DH-13B and DH-18: ≤ 5 gpm total	In accordance with the INSERVICE TESTING PROGRAM AND Once prior to entering MODE 2 whenever the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months
SR 3.4.14.2	Verify DHR System autoclosure interlock prevents the valves from being opened with a simulated or actual high RCS pressure signal.	In accordance with the Surveillance Frequency Control Program
SR 3.4.14.3	Verify DHR System autoclosure interlock causes the valves to close automatically with a simulated or actual high RCS pressure signal: c. ≤ 340 psig for one valve; and d. ≤ 400 psig for the other valve.	In accordance with the Surveillance Frequency Control Program
SR 3.4.14.4	Verify DHR System autoclosure interlock prevents the valves from being opened with a simulated or actual Core Flood Tank isolation valve "not closed" signal.	In accordance with the Surveillance Frequency Control Program
SR 3.4.14.5	Verify DHR System autoclosure interlock causes the valves to close automatically with a simulated or actual Core Flood Tank isolation valve "not closed" signal.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

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

a. One reactor building sump monitor; and

b. One reactor building atmosphere radioactivity monitor (gaseous or particulate).

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor Building sump monitor inoperable.	A.1 ----------NOTE---------- Not required until 12 hours after establishment of steady state operation at or near operating pressure. ----------	
	Perform SR 3.4.13.1.	Once per 24 hours
	AND	
	A.2 Restore reactor building sump monitor to OPERABLE status.	30 days

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required reactor building atmosphere radioactivity monitor inoperable.	B.1.1 Analyze grab samples of the reactor building atmosphere. OR B.1.2 ----------NOTE---------- Not required until 12 hours after establishment of steady state operation at or near operating pressure. ---------- Perform SR 3.4.13.1. AND B.2 Restore required reactor building atmosphere radioactivity monitor to OPERABLE status.	Once per 24 hours Once per 24 hours 30 days
----------NOTE---------- Only applicable when the reactor building atmosphere gaseous radiation monitor is the only OPERABLE monitor. ---------- C. Reactor Building sump monitor inoperable.	C.1 Analyze grab samples of the reactor building atmosphere. AND C.2 Restore reactor building sump monitor to OPERABLE status.	Once per 12 hours 7 days
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours
E. Both required monitors inoperable.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of required reactor building atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.2	Perform CHANNEL FUNCTIONAL TEST of required reactor building atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.3	Perform CHANNEL CALIBRATION of required reactor building atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.4	Perform CHANNEL CALIBRATION of required reactor building sump monitor.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 Steam Generator (SG) Tube Integrity

LCO 3.4.16 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube plugging criteria shall be plugged in accordance with the Steam Generator Program.

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

---NOTE---
Separate Condition entry is allowed for each SG tube.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.16.2	Verify that each inspected SG tube that satisfies the tube plugging criteria is plugged in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Core Flood Tanks (CFTs)

LCO 3.5.1 Two CFTs shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CFT inoperable due to boron concentration not within limits.	A.1 Restore boron concentration to within limits.	72 hours
B. One CFT inoperable for reasons other than Condition A.	B.1 Restore CFT to OPERABLE status.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met. OR Two CFTs inoperable.	C.1 Be in MODE 3. AND C.2 Reduce RCS pressure to ≤ 800 psig.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each CFT isolation valve is fully open.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE		FREQUENCY
SR 3.5.1.2	Verify borated water volume in each CFT is ≥ 970 ft^3 and ≤ 1110 ft^3.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify nitrogen cover pressure in each CFT is ≥ 560 psig and ≤ 640 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify boron concentration in each CFT is ≥ 2270 ppm.	In accordance with the Surveillance Frequency Control Program AND ---------NOTE------- Only required to be performed for affected CFT ---------- Once within 12 hours after each solution level increase of ≥ 0.2 feet that is not the result of addition from a borated water source of known concentration ≥ 2270 ppm
SR 3.5.1.5	Verify power is removed from each CFT isolation valve operator.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS – Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more trains inoperable.	A.1 Restore train(s) to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Reduce RCS temperature to ≤ 350 °F.	6 hours 12 hours
C. Less than 100% of the ECCS flow equivalent to a single OPERABLE train available.	C.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE		FREQUENCY
SR 3.5.2.2	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.2.3	Verify each ECCS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 Two LPI trains shall be OPERABLE.

---NOTE---
An LPI train may be considered OPERABLE during alignment and when aligned for decay heat removal, if capable of being manually realigned to the LPI mode of operation.

APPLICABILITY: MODE 3 with Reactor Coolant System (RCS) temperature ≤ 350°F, MODE 4.

ACTIONS

---NOTE---
LCO 3.0.4.b is not applicable to ECCS DHR loops.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One LPI train inoperable.	A.1 Restore LPI train to OPERABLE status.	48 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 ---NOTE--- Only required if one DHR train is OPERABLE. --- Be in MODE 5.	24 hours
C. Two LPI trains inoperable.	C.1 Initiate action to restore one LPI train to OPERABLE status. AND C.2 ---NOTE--- Only required if one DHR train is OPERABLE. --- Be in MODE 5.	Immediately 24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	----------NOTE---------- An LPI train may be considered OPERABLE during alignment and operation for DHR, if capable of being manually realigned to the LPI mode of operation. ----------	
	For all equipment required to be OPERABLE, the following SRs are applicable: SR 3.5.2.1 SR 3.5.2.4 SR 3.5.2.2 SR 3.5.2.3	In accordance with applicable SRs

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS)

3.5.4 Borated Water Storage Tank (BWST)

LCO 3.5.4 The BWST shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. BWST boron concentration not within limits.	A.1 Restore BWST to OPERABLE status.	8 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours
C. BWST water temperature not within limits.	C.1 Restore BWST to OPERABLE status.	8 hours
D. BWST inoperable for reasons other than Condition A or C.	D.1 Restore BWST to OPERABLE status.	1 hour
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.4.1	----------NOTE---------- Only required to be performed when ambient air temperature is < 40 °F or > 110 °F. ----------	
	Verify BWST borated water temperature is ≥ 40 °F and ≤ 110 °F.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.2	Verify BWST borated water level is ≥ 38.4 feet and ≤ 42 feet.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.3	Verify BWST boron concentration is ≥ 2270 ppm and ≤ 2670 ppm.	In accordance with the Surveillance Frequency Control Program

3.6 REACTOR BUILDING SYSTEMS

3.6.1 Reactor Building

LCO 3.6.1 The reactor building shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1	Perform required visual examinations and leakage rate testing except for reactor building air lock testing, in accordance with the Reactor Building Leakage Rate Testing Program.	In accordance with the Reactor Building Leakage Rate Testing Program

3.6 REACTOR BUILDING SYSTEMS

3.6.2 Reactor Building Air Locks

LCO 3.6.2 Two reactor building air locks shall be OPERABLE.

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

ACTIONS

NOTES

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

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

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Lock an OPERABLE door closed in the affected air lock. AND B.3 ----------NOTE---------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ---------- Verify an OPERABLE door is locked closed in the affected air lock.	24 hours Once per 31 days
C. One or more reactor building air locks inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate overall reactor building leakage rate per LCO 3.6.1. AND C.2 Verify a door is closed in the affected air lock. AND C.3 Restore air lock to OPERABLE status.	Immediately 1 hour 24 hours OR In accordance with the Risk Informed Completion Time Program
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.2.1	----------NOTE---------- 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1. ---------- Perform required air lock leakage rate testing in accordance with the Reactor Building Leakage Rate Testing Program.	In accordance with the Reactor Building Leakage Rate Testing Program
SR 3.6.2.2	Verify only one door in the air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program

3.6 REACTOR BUILDING SYSTEMS

3.6.3 Reactor Building Isolation Valves

LCO 3.6.3 Each reactor building isolation valve shall be OPERABLE.

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

ACTIONS

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

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Only applicable to penetration flow paths with two reactor building isolation valves. ---------- One or more penetration flow paths with one reactor building isolation valve inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	48 hours OR In accordance with the Risk Informed Completion Time Program

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 ----------NOTES---------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days following isolation for isolation devices outside the reactor building <u>AND</u> Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside the reactor building
B. ----------NOTE---------- Only applicable to penetration flow paths with two reactor building isolation valves. ---------- One or more penetration flow paths with two reactor building isolation valves inoperable.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ----------NOTE---------- Only applicable to penetration flow paths with only one reactor building isolation valve and a closed system. ---------- One or more penetration flow paths with one reactor building isolation valve inoperable.	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. <u>AND</u> C.2 ----------NOTES---------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program Once per 31 days following isolation
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. <u>AND</u> D.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.3.1	Verify each reactor building purge isolation valve is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.2	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ----------	
	Verify each reactor building isolation manual valve and blind flange that is located outside the reactor building and not locked, sealed, or otherwise secured, and is required to be closed during accident conditions is closed, except for reactor building isolation valves that are open under administrative controls.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.3	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ----------	
	Verify each reactor building isolation manual valve and blind flange that is located inside the reactor building and not locked, sealed, or otherwise secured, and required to be closed during accident conditions is closed, except for reactor building isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.4	Verify the isolation time of each automatic power operated reactor building isolation valve is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.3.5	Verify each automatic reactor building isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.6 REACTOR BUILDING SYSTEMS

3.6.4 Reactor Building Pressure

LCO 3.6.4 Reactor building pressure shall be ≥ -1.0 psig and ≤ +3.0 psig.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor building pressure not within limits.	A.1 Restore reactor building pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND	6 hours
	B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1	Verify reactor building pressure is ≥ -1.0 psig and ≤ +3.0 psig.	In accordance with the Surveillance Frequency Control Program

3.6 REACTOR BUILDING SYSTEMS

3.6.5 Reactor Building Spray and Cooling Systems

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

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

APPLICABILITY: MODES 1, 2, 3, and 4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One reactor building spray train inoperable in MODE 1 or 2.	A.1 Restore reactor building spray train to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
B. One reactor building cooling train inoperable in MODE 1 or 2.	B.1 Restore reactor building cooling train to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
C. Two reactor building cooling trains inoperable in MODE 1 or 2.	C.1 Restore one reactor building cooling train to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program

D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Be in MODE 3.	6 hours
E. One required reactor building spray train inoperable in MODE 3 or 4. OR One required reactor building cooling train inoperable in MODE 3 or 4.	E.1	Restore required inoperable train to OPERABLE status.	36 hours
F. Required Action and associated Completion Time of Condition E not met.	F.1	Be in MODE 5.	36 hours
G. Two reactor building spray trains inoperable in MODE 1 or 2. OR Any combination of three or more trains inoperable in MODE 1 or 2. OR One required reactor building spray train and one required reactor building cooling train inoperable in MODE 3 or 4.	G.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.5.1	Verify each reactor building spray manual, power operated, and automatic valve in each required flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.2	Operate each required reactor building cooling train fan unit for $\geq$ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.3	Verify each required reactor building cooling train cooling water flow rate is $\geq$ 1200 gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.4	Verify each required reactor building spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.5.5	Verify each automatic reactor building spray valve in each required flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.6	Verify each required reactor building spray pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.7	Verify each required reactor building cooling train starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.8	Verify each spray nozzle is unobstructed.	Following maintenance which could result in nozzle blockage

3.6 REACTOR BUILDING SYSTEMS

3.6.6 Reactor Building (RB) Sump Buffering Agent

LCO 3.6.6 The RB Sump Buffering Agent shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RB Sump Buffering Agent inoperable.	A.1 Restore RB Sump Buffering Agent to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	Verify the summed volume of sodium tetraborate (NaTB) decahydrate contained within the RB Sump Buffering Agent baskets is ≥ 308 ft^3.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.2	Verify a sample from each RB Sump Buffering Agent basket provides adequate pH adjustment of borated water.	In accordance with the Surveillance Frequency Control Program

3.6 REACTOR BUILDING SYSTEMS

3.6.7 Reactor Building Sump

LCO 3.6.7 The reactor building sump shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor building sump inoperable due to reactor building accident generated and transported debris exceeding the analyzed limits.	A.1 Initiate action to mitigate reactor building accident generated and transported debris. AND	Immediately
	A.2 Perform SR 3.4.13.1. AND	Once per 24 hours
	A.3 Restore the reactor building sump to OPERABLE status.	90 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Reactor building sump inoperable for reasons other than Condition A.	B.1 ----------NOTES---------- 1. Enter applicable Conditions and Required Actions of LCO 3.5.2, "ECCS – Operating," and LCO 3.5.3, "ECCS – Shutdown," for emergency core cooling trains made inoperable by the reactor building sump. 2. Enter applicable Conditions and Required Actions of LCO 3.6.5, "Reactor Building Spray and Cooling Systems," for reactor building spray trains made inoperable by the reactor building sump. ---------- Restore the reactor building sump to OPERABLE status.	72 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify, by visual inspection, the reactor building sump does not show structural damage, abnormal corrosion, or debris blockage.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 Seven MSSVs shall be OPERABLE on each main steam line.

NOTE
During main steam system hydrotesting in MODE 3, one MSSV is required to be OPERABLE on each main steam line with lift setpoints adjusted to allow testing.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

NOTE
Separate Condition entry is allowed for each MSSV.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required MSSVs inoperable.	A.1	Reduce power in accordance with Table 3.7.1-1.	4 hours
	AND		
	A.2	Reduce the nuclear overpower trip setpoint in accordance with Table 3.7.1-1.	36 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
OR	B.2	Be in MODE 4.	12 hours
One or more steam generators with less than two MSSVs OPERABLE.			

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ----------	
	Verify each required MSSV lift setpoint in accordance with the INSERVICE TESTING PROGRAM. Following testing, as-left lift settings shall be within ± 1%.	In accordance with the INSERVICE TESTING PROGRAM

Table 3.7.1-1
Allowable Power Level and RPS Nuclear Overpower Trip
Allowable Value versus OPERABLE Main Steam Safety Valves

MINIMUM NUMBER OF MSSVS OPERABLE (PER SG)	MAXIMUM ALLOWABLE POWER LEVEL (% RTP)	RPS NUCLEAR OVERPOWER TRIP ALLOWABLE VALUE (% RTP)
6	85.7	89.9
5	71.4	74.9
4	57.1	59.9
3	42.8	44.9
2	28.5	29.9

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 Two MSIVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MSIV(s) inoperable in MODE 1 or 2.	A.1 Restore MSIV(s) to OPERABLE status.	24 hours OR ----------NOTE---------- Only applicable when one MSIV remains OPERABLE. ---------- In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
C. ----------NOTE---------- Separate Condition entry is allowed for each MSIV. ---------- One or more MSIV(s) inoperable in MODE 3.	C.1 Close MSIV. AND C.2 Verify MSIV is closed.	48 hours Once per 7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 4.	24 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify isolation time of each MSIV is within the limits specified in the INSERVICE TESTING PROGRAM.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.2.2	----------NOTE---------- 1. Only required to be performed in MODES 1 and 2. 2. Not required to be met when SG pressure is < 750 psig. ---------- Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs), Main Feedwater Block Valves, Low Load Feedwater Control Valves and Startup Feedwater Control Valves

LCO 3.7.3 All MFIVs, Main Feedwater Block Valves, Low Load Feedwater Control Valves and Startup Feedwater Control Valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One MFIV in one or more flow paths inoperable	A.1	Close or isolate MFIV.	72 hours
	AND		
	A.2	Verify MFIV is closed or isolated.	Once per 7 day
B. One Main Feedwater Block Valve in one or more flow paths inoperable	B.1	Close or isolate Main Feedwater Block Valve.	72 hours
	AND		
	B.2	Verify Main Feedwater Block Valve is closed or isolated.	Once per 7 days
C. One Low Load Feedwater Control Valve in one or more flow paths inoperable.	C.1	Close or isolate Low Load Feedwater Control Valve.	72 hours
	AND		
	C.2	Verify Low Load Feedwater Control Valve is closed or isolated.	Once per 7 days

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One Startup Feedwater Control Valve in one or more flow paths inoperable.	D.1 Close or isolate Startup Feedwater Control Valve. AND D.2 Verify Startup Feedwater Control Valve is closed or isolated.	72 hours Once per 7 days
E. Two valves in the same flow path inoperable for one or more flow paths.	E.1 Isolate affected flow path.	8 hours
F. Required Action and associated Completion Time not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify the isolation time of each MFIV, Main Feedwater Block Valve, Low Load Feedwater Control Valve and Startup Feedwater Control Valve is within the limits provided in the INSERVICE TESTING PROGRAM.	In accordance with the INSERVICE TESTING PROGRAM

	SURVEILLANCE	FREQUENCY
SR 3.7.3.2	----------NOTES---------- 1. Only required to be performed in MODES 1 and 2. 2. Not required to be met when SG pressure is < 750 psig. ----------	
	Verify that each MFIV, Main Feedwater Block Valve, Low Load Feedwater Control Valve and Startup Feedwater Control Valve actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.4 Secondary Specific Activity

LCO 3.7.4 The specific activity of the secondary coolant shall be ≤ 0.1 μCi/gm DOSE EQUIVALENT I-131.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify the specific activity of the secondary coolant is ≤ 0.1 μCi/gm DOSE EQUIVALENT I-131.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.5 Emergency Feedwater (EFW) System

LCO 3.7.5 Two EFW trains shall be OPERABLE.

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

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

ACTIONS

----------NOTE----------
LCO 3.0.4.b is not applicable when entering Mode 1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Turbine driven EFW train inoperable due to one inoperable steam supply. OR ----------NOTE---------- Only applicable if MODE 2 has not been entered following refueling. --- Turbine driven EFW pump inoperable in MODE 3 following refueling.	A.1 Restore affected equipment to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
B. One EFW train inoperable in MODE 1, 2, or 3 for reasons other than Condition A.	B.1 Restore EFW train to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Turbine driven EFW train inoperable due to one inoperable steam supply. AND Motor driven EFW train inoperable.	C.1 Restore the steam supply to the turbine driven EFW train to OPERABLE status. OR C.2 Restore the motor driven EFW train to OPERABLE status.	24 hours OR In accordance with the Risk Informed Completion Time Program 24 hours OR In accordance with the Risk Informed Completion Time Program
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 18 hours
E. ----------NOTE---------- Not applicable when the turbine driven EFW train is inoperable solely due to one inoperable steam supply. ---------- Two EFW trains inoperable in MODE 1, 2, or 3.	E.1 ----------NOTE---------- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one EFW train is restored to OPERABLE status. ---------- Initiate action to restore one EFW train to OPERABLE status.	 Immediately
F. Required EFW train inoperable in MODE 4.	F.1 Initiate action to restore EFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.5.1	Verify each EFW manual, power operated, and automatic valve in each water flow path and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.2	----------NOTE---------- Not required to be performed for the turbine driven EFW pump, until 24 hours after reaching $\geq$ 750 psig in the steam generators. ----------	
	Verify the developed head of each EFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.5.3	----------NOTE---------- Not required to be met in MODE 4 when steam generator is relied upon for heat removal. ----------	
	Verify each EFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.4	----------NOTE---------- Not required to be met in MODE 4 when steam generator is relied upon for heat removal. ----------	
	Verify each EFW pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.5.5	Verify proper alignment of the required EFW flow paths by verifying manual valve alignment from the "Q" condensate storage tank to each steam generator.	Prior to entering MODE 2 whenever the unit has been in MODE 5, MODE 6, or defueled for a cumulative period of > 30 days
SR 3.7.5.6	Verify that feedwater is delivered to each steam generator using the motor-driven EFW pump.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.6 Q Condensate Storage Tank (QCST)

LCO 3.7.6 The QCST shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify QCST volume is ≥ 267,000 gallons when required for both units and ≥ 107,000 gallons when only required for Unit 1.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.7 Service Water System (SWS)

LCO 3.7.7 Two SWS loops shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SWS loop inoperable.	A.1 ----------NOTES---------- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for diesel generator made inoperable by SWS. 2. Enter Applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for decay heat removal made inoperable by SWS. ---------- Restore SWS loop to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	----------NOTE---------- Isolation of SWS flow to individual components does not render the SWS inoperable. ---------- Verify each SWS manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.7.2	Verify each SWS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.7.3	Verify each required SWS pump starts automatically on an actual or simulated signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.8 Emergency Cooling Pond (ECP)

LCO 3.7.8 The ECP shall be OPERABLE.

----------NOTE----------
The ECP may be considered OPERABLE on a one-time basis for up to 65 days during upgrade of the ECP supply piping to the SWS intake bays provided:

a. A loss of Lake Dardanelle event is not in progress, and

b. A temporary pumping system is capable of supplying the SWS from the ECP. The temporary pumping system may be unavailable for testing or necessary maintenance provided its availability is restored within 72 hours, and

c. The compensatory measures described in the ANO correspondence letter 0CAN022201, dated February 17, 2022, Enclosure, Attachment 4 shall be implemented. Failure to meet one or more of the continuing compliance compensatory measures is acceptable provided the measure(s) is/are restored within 72 hours.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Degradation of the ECP noted pursuant to SR 3.7.8.4 below or by other inspection.	A.1 Determine ECP remains acceptable for continued operation.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR LCO not met for reasons other than Condition A.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.8.1	Verify that the indicated water level of the ECP is greater than or equal to that required for an ECP volume of 70 acre-ft.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.2	----------NOTE---------- Only required to be performed from June 1 through September 30. ---------- Verify average water temperature is ≤ 100 °F.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.3	Perform soundings of the ECP to verify: 1. A contained water volume of ECP ≥ 70 acre-feet, and 2. The minimum indicated water level needed to ensure a volume of 70 acre-feet is maintained.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.4	Perform visual inspection of the ECP to verify conformance with design requirements.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.9 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.9 Two CREVS trains shall be OPERABLE.

---NOTES---

1. The control room envelope (CRE) boundary may be opened intermittently under administrative controls.

2. One CREVS train shall be capable of automatic actuation.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours
D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	D.1 Place OPERABLE CREVS train in emergency recirculation mode. OR D.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
E. Two CREVS trains inoperable during movement of irradiated fuel assemblies. OR One or more CREVS trains inoperable due to an inoperable CRE boundary during movement of irradiated fuel assemblies.	E.1 Suspend movement of irradiated fuel assemblies.	Immediately
F. Two CREVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Operate each CREVS train for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.9.2	Perform required CREVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.9.3	Verify the CREVS automatically isolates the Control Room and switches into a recirculation mode of operation on an actual or simulated actuation signal, except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.9.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program.

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Air Conditioning System (CREACS)

LCO 3.7.10 Two CREACS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREACS train inoperable.	A.1 Restore CREACS train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	B.1 Be in MODE 3. AND B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours
C. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	C.1 Place OPERABLE CREACS train in operation. OR C.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
D. Two CREACS trains inoperable during movement of irradiated fuel assemblies.	D.1 Suspend movement of irradiated fuel assemblies.	Immediately
E. Two CREACS trains inoperable during MODE 1, 2, 3, or 4.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify each CREACS train starts, operates for at least 1 hour, and maintains control room air temperature ≤ 84 °F D. B.	In accordance with the Surveillance Frequency Control Program
SR 3.7.10.2	Verify system flow rate of 9900 cfm ± 10%.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.11 Penetration Room Ventilation System (PRVS)

LCO 3.7.11 Two PRVS trains shall be OPERABLE.

---NOTE---
The penetration room negative pressure boundary may be opened intermittently under administrative controls.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One PRVS train inoperable.	A.1 Restore PRVS train to OPERABLE status.	7 days
B. Two PRVS trains inoperable due to inoperable penetration room negative pressure boundary.	B.1 Restore penetration room negative pressure boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met. OR Both PRVS trains inoperable for reasons other than Condition B.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Operate each PRVS train for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.11.2	Perform required PRVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.11.3	Verify each PRVS train actuates on an actual or simulated actuation signal, except for dampers and valves that are locked, sealed, or otherwise secured in the actuated position.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.13 Spent Fuel Pool Water Level.

LCO 3.7.13 The spent fuel pool water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.13.1	Verify the spent fuel pool water level is ≥ 23 ft above the top of irradiated fuel assemblies seated in the storage racks.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.14 Spent Fuel Pool Boron Concentration

LCO 3.7.14 The spent fuel pool boron concentration shall be > 2000 ppm.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.14.1	Verify the spent fuel pool boron concentration is > 2000 ppm.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.15 Spent Fuel Pool Storage

LCO 3.7.15 Fuel assemblies shall be stored in the spent fuel pool within the acceptable limits of Table 3.7.15-1 or in accordance with Specification 4.3.1.1.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Initiate action to move the non-complying fuel assembly to an acceptable storage location in accordance with Table 3.7.15-1.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.15.1	Verify by administrative means the parameters associated with the fuel assembly are in accordance with Table 3.7.15-1 or Specification 4.3.1.1.	Prior to storing the fuel assembly in the spent fuel pool.
SR 3.7.15.2	Verify Metamic properties are in accordance with, and are maintained within the limits of, the Metamic Coupon Sampling Program.	In accordance with the Metamic Coupon Sampling Program.

Table 3.7.15-1
Loading Restrictions for Spent Fuel Storage Racks

Region 1 - Minimum Burnup Requirements at Varying Initial U-235 Enrichment and Cooling Time (Notes 1 & 2)

Enrichment	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Cooling Time (Years)	Minimum Burnup (GWD/MTU)						
0	2.3	9.2	15.5	22.1	27.7	33.0	39.0
5	2.2	8.7	14.8	21.1	26.7	31.1	37.1
10	2.1	8.3	14.0	20.0	25.6	29.8	35.3
15	2.0	8.1	13.6	19.4	25.3	29.1	34.0
20	2.0	8.0	13.5	19.0	24.6	28.6	33.3

Region 2 - Minimum Burnup Requirements at Varying Initial U-235 Enrichment and Cooling Time (Notes 1 & 2)

Enrichment	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Cooling Time (Years)	Minimum Burnup (GWD/MTU)						
0	4.5	11.7	18.7	25.7	30.6	36.9	42.8
5	4.2	11.0	17.6	24.2	29.1	34.4	40.7
10	4.0	10.6	16.7	23.0	28.1	33.0	38.6
15	4.0	10.1	15.9	22.4	27.4	31.8	37.4
20	4.0	9.8	15.7	21.8	26.8	31.2	36.4

Region 3 Loading Restrictions

Unrestricted storage is allowed for fuel assemblies with an initial U-235 enrichment less than or equal to 4.35 wt%.

For fuel assemblies with an initial U-235 enrichment greater than 4.35 wt%, the burnup of at least one fuel assembly in each 2 x 2 section of storage cells is at least 20.1 GWD/MTU.

Note 1: Linear interpolation between burnups for a given cooling time is allowed. However, linear interpolation between cooling times is not allowed, therefore the cooling time of a given assembly must be rounded down to the nearest cooling time.

Note 2: When it is necessary to store fuel assemblies in Region 1 or Region 2 that do not meet the burnup versus U-235 enrichment restrictions, fuel assemblies, including fresh or irradiated fuel assemblies with a maximum U-235 enrichment of 4.95 wt%, may be stored in a 2 x 2 checkerboard (i.e., 2 assemblies and 2 empty cells) arrangement.

Table 3.7.15-1 (continued)
Loading Restrictions for the Spent Fuel Storage Racks

Rack Interface Requirements

In addition to the above requirements for each individual rack, the following requirements must be met on the interfaces between and within racks:

a. In the Region 1 and Region 2 racks, a fresh fuel checkerboard and uniform spent fuel loading may be placed in the same rack.

b. In Region 1 and Region 2 racks, if adjacent racks contain a checkerboard of fresh fuel assemblies, the checkerboard must be maintained across the gap, i.e., fresh fuel assemblies may not face each other across a gap.

c. In Region 3, uniform loading of fresh fuel with a maximum U-235 enrichment of 4.35wt% may be combined with 3 of 4 loading in the same rack as long as a row of fresh and spent fuel in the 3 of 4 loading pattern faces the uniform loading of all fresh fuel with a maximum U-235 enrichment of 4.35 wt%.

d. If adjacent Region 3 racks contain different loading patterns (one rack contains all fresh fuel with a maximum U-235 enrichment of 4.35 wt% and the other rack contains a 3 of 4 loading pattern), both fresh and spent fuel must be in the outer row of the rack containing the 3 of 4 pattern.

e. If adjacent Region 3 racks both contain 3 of 4 loading patterns, both racks may not have fresh fuel facing the other rack. A loading pattern with both Region 3 racks containing 3 of 4 patterns with all fresh fuel in the outer row of one rack and fresh and spent fuel in the outer row of the second rack is allowed.

f. All interfaces between dissimilar racks (Region 1-Region 3 and Region 2-Region 3) are permitted.

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 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; and

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

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit. AND	1 hour AND Once per 12 hours thereafter
	A.2 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable. AND	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3 ----------NOTE---------- Startup Transformer No. 2 may be removed from service for up to 30 days for preplanned preventative maintenance. This 30 day Completion Time may be applied not more than once in any 10 year period. ---------- Restore required offsite circuit to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
B. One DG inoperable.	B.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit(s). AND B.2 Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable. AND B.3.1 Determine OPERABLE DG is not inoperable due to common cause failure. OR B.3.2 Perform SR 3.8.1.2 for OPERABLE DG. AND	1 hour AND Once per 12 hours thereafter 4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s) 24 hours 24 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.4 Restore DG to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
C. Two required offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable. AND C.2 Restore one required offsite circuit to OPERABLE status.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s) 24 hours OR In accordance with the Risk Informed Completion Time Program
D. One required offsite circuit inoperable. AND One DG inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.6, “Distribution Systems – Operating,” when Condition D is entered with no AC power source to any train. ---------- D.1 Restore required offsite circuit to OPERABLE status. OR	 12 hours OR In accordance with the Risk Informed Completion Time Program

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.2 Restore DG to OPERABLE status.	12 hours OR In accordance with the Risk Informed Completion Time Program
E. Two DGs inoperable.	E.1 Restore one DG to OPERABLE status.	2 hours
F. Required Action and Associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3. AND F.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours
G. Three or more required AC sources inoperable.	G.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	In accordance with the Surveillance Frequency Control Program

	SURVEILLANCE	FREQUENCY
SR 3.8.1.2	----------NOTE---------- All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. ----------	
	Verify each DG starts from standby conditions and, in ≤ 15 seconds achieves “ready-to-load” conditions.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.3	----------NOTES---------- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and follow, without shutdown, a successful performance of SR 3.8.1.2. ----------	
	Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 2475 kW and ≤ 2750 kW.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4	Verify each day tank contains ≥ 160 gallons of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.5	Check for and remove accumulated water from each day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.6	Verify the fuel oil transfer system operates to transfer fuel oil from storage tanks to the day tank.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	----------NOTE---------- This Surveillance shall not normally be performed in MODE 1 or 2. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. ---------- Verify automatic transfer of AC power sources to the selected offsite circuit and manual transfer to the alternate required offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.8	----------NOTE---------- All DG starts may be preceded by an engine prelube period. ---------- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. achieves "ready-to-load" conditions in ≤ 15 seconds, 2. energizes permanently connected loads, 3. energizes auto-connected shutdown load through automatic load sequencing timers, and 4. supplies connected loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	----------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 ESF actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. achieves "ready-to-load" conditions in ≤ 15 seconds, 2. energizes permanently connected loads, 3. energizes auto-connected emergency loads through load sequencing timers, and 4. supplies connected loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

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

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

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

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

ACTIONS

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

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.2	Suspend movement of irradiated fuel assemblies.	Immediately
	AND		
	A.2.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND		
	A.2.4	Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One required DG inoperable.	B.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	B.2	Suspend movement of irradiated fuel assemblies.	Immediately
	AND		
	B.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND		
	B.4	Initiate action to restore required DG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	----------NOTES---------- 1. SR 3.8.1.3 is not required to be performed. 2. The 15 second acceptance criteria of SR 3.8.1.2 is not applicable. ----------	
	For AC Sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources – Operating," except SR 3.8.1.4, SR 3.8.1.7, SR 3.8.1.8, and SR 3.8.1.9, are applicable.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil and Starting Air

LCO 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 DG fuel oil storage tank(s) with fuel volume < 20,000 gallons and > 17,140 gallons.	A.1 Restore fuel oil volume to within limits.	48 hours
B. One or more DGs with stored fuel oil total particulates not within limit.	B.1 Restore fuel oil total particulates to within limits.	7 days
C. One or more DGs with new fuel oil properties not within limits.	C.1 Restore stored fuel oil properties to within limits.	30 days
D. One or more DGs with required starting air receiver pressure < 175 psig and ≥ 158 psig.	D.1 Restore required starting air receiver pressure to within limits.	48 hours

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains ≥ 20,000 gallons of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.3	Verify each DG required air start receiver pressure is ≥ 175 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.4	Check for and remove accumulated water from each fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 Both DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One DC electrical power subsystem inoperable.	A.1 Restore DC electrical power subsystem to OPERABLE status.	8 hours OR In accordance with the Risk Informed Completion Time Program
B. Required Action and Associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify each battery charger supplies ≥ 300 amps at greater than or equal to the minimum established float voltage for ≥ 8 hours. OR Verify each battery charger can recharge the battery to the fully charged state within 24 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

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

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required battery charger on one subsystem inoperable. AND The required redundant subsystem battery and charger are OPERABLE.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. AND A.2 Verify battery float current ≤ 2 amps.	2 hours Once per 12 hours
B. One or more required DC electrical power subsystems inoperable for reasons other than Condition A. OR Required Action and associated Completion Time of Condition A not met.	B.1.1 Suspend CORE ALTERATIONS. AND B.1.2 Suspend movement of irradiated fuel assemblies. AND B.1.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. AND	Immediately Immediately Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.1.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status. AND	Immediately
	B.1.5 Enter applicable Conditions and Required Actions of LCO 3.4.11, "Low Temperature Overpressure Protection (LTOP) System," for LTOP features made inoperable by Condition B.	Immediately

SURVEILLANCE REQUIREMENTS

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

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

LCO 3.8.6 Battery parameters for the Train A and Train B electrical power subsystem batteries shall be within limits.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One battery with one or more battery cells float voltage < 2.07 V.	A.1 Perform SR 3.8.4.1. AND A.2 Perform SR 3.8.6.1. AND A.3 Restore affected cell voltage ≥ 2.07 V.	2 hours 2 hours 24 hours
B. One battery with float current > 2 amps.	B.1 Perform SR 3.8.4.1 AND B.2 Restore battery float current to ≤ 2 amps.	2 hours 12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Required Action C.2 shall be completed if electrolyte level was below the top of the plates. ----------	----------NOTE---------- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of the plates. ----------	
C. One battery with one or more cells electrolyte level less than minimum established design limits.	C.1 Restore electrolyte level to above top of plates. AND C.2 Verify no evidence of leakage. AND C.3 Restore electrolyte level to greater than or equal to minimum established design limits.	8 hours 12 hours 31 days
D. One battery with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. Two batteries with battery parameters not within limits.	E.1 Restore at least one battery to within limits.	2 hours
F. Required Actions and associated Completion Times of Condition A, B, C, D, or E not met. OR One battery with one or more battery cells float voltage < 2.07 V and float current > 2 amps.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.6.1	----------NOTE---------- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. ---------- Verify each battery float current is ≤ 2 amps.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.2	Verify each battery pilot cell float voltage is ≥ 2.07 V.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.5	Verify each battery connected cell float voltage is ≥ 2.07 V.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE		FREQUENCY
SR 3.8.6.6	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program AND 12 months when battery shows degradation, or has reached 85% of the expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The following inverters shall be OPERABLE.

a. Two Red Train inverters (Y11 and Y13, Y11 and Y15, or Y13 and Y15), and

b. Two Green Train inverters (Y22 and Y24, Y22 and Y25, or Y24 and Y25),

----------NOTE----------
One of the four inverters required by LCO 3.8.7.a and LCO 3.8.7.b may be disconnected from its associated DC bus for ≤ 2 hours to perform load transfer to or from the swing inverter, provided:

a. The associated 120 VAC bus is energized from its alternate AC source; and

b. The other three 120 VAC buses are energized from their associated OPERABLE inverters.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One of the four inverters required by LCO 3.8.7.a and LCO 3.8.7.b inoperable.	A.1 ----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any of the 120 VAC buses RS1, RS2, RS3, or RS4 de-energized. ---------- Restore inverter to OPERABLE status.	24 hours OR In accordance with the Risk Informed Completion Time Program

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours
C. Two or more of the four inverters required by LCO 3.8.7.a and LCO 3.8.7.b inoperable.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, frequency, and alignment to associated 120 VAC buses RS1, RS2, RS3, and RS4.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 Inverters shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems – Shutdown."

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately
	AND	

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.5 Enter applicable Conditions and Required Actions of LCO 3.4.11, "Low Temperature Overpressure Protection (LTOP) System," for LTOP features made inoperable by AC vital bus inverter(s).	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct inverter voltage and alignments to required 120 VAC vital buses.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 Two AC, DC, and 120 VAC electrical power distribution subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more AC electrical power distribution subsystem(s) inoperable.	A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours OR In accordance with the Risk Informed Completion Time Program
B. One or more 120 VAC electrical power distribution subsystem(s) (RS1, RS2, RS3, RS4) inoperable.	B.1 Restore 120 VAC electrical power distribution subsystem(s) to OPERABLE status.	8 hours OR In accordance with the Risk Informed Completion Time Program
C. One or more DC electrical power distribution subsystem(s) inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	8 hours OR In accordance with the Risk Informed Completion Time Program

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering Mode 4. ---------- Be in MODE 4.	6 hours 12 hours
E. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments to required AC, DC, and 120 VAC bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portion of AC, DC, and 120 VAC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE by the following specifications:

LCO 3.3.9, "Source Range Neutron Flux,"
LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits,"
LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled,"
LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled,"
LCO 3.4.11, "Low Temperature Overpressure Protection (LTOP) System,"
LCO 3.7.9, "Control Room Emergency Ventilation System (CREVS),"
LCO 3.7.10, "Control Room Emergency Air Conditioning System (CREACS),"
LCO 3.9.2, "Nuclear Instrumentation," for one monitor,
LCO 3.9.4, "Decay Heat Removal (DHR) and Coolant Circulation - High Water Level," and
LCO 3.9.5, "Decay Heat Removal (DHR) and Coolant Circulation - Low Water Level."

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or 120 VAC vital bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable. OR A.2.1 Suspend CORE ALTERATIONS. AND	Immediately Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	A.2.4 Initiate actions to restore required AC, DC, and 120 VAC vital bus electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.5 Declare associated required decay heat removal subsystem(s) inoperable.	Immediately
	AND	
	A.2.6 Enter applicable Conditions and Required Actions of LCO 3.4.11, "Low Temperature Overpressure Protection (LTOP) System," for LTOP features made inoperable by Electrical Power Distribution System.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments to required AC, DC, and 120 VAC vital bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Reactor Coolant System and the refueling canal shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

---NOTE---
Only applicable to the refueling canal when connected to the RCS.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.2 Nuclear Instrumentation

LCO 3.9.2

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

b. One additional source range neutron flux monitor shall be OPERABLE during CORE ALTERATIONS.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required source range neutron flux monitor inoperable during CORE ALTERATIONS.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
B. No OPERABLE source range neutron flux monitor.	B.1	Initiate action to restore one source range neutron flux monitor to OPERABLE status.	Immediately
	AND		
	B.2	Perform SR 3.9.1.1.	Once per 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.9.2.2	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ----------	
	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.3 Reactor Building Penetrations

LCO 3.9.3 The reactor building penetrations shall be in the following status:

a. The equipment hatch is capable of being closed;

b. One door in each air lock is capable of being closed; and

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

1. closed by a manual or automatic isolation valve, blind flange, or equivalent, or

2. capable of being closed by an OPERABLE reactor building isolation valve, except reactor building purge isolation valves, or

3. capable of being closed by an OPERABLE reactor building purge isolation valve with the purge exhaust radiation monitoring channel OPERABLE.

----------NOTE----------
Penetration flow path(s) providing direct access from the reactor building atmosphere to the outside atmosphere may be unisolated under administrative controls.

APPLICABILITY: During movement of irradiated fuel assemblies within the reactor building.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more reactor building penetrations not in required status.	A.1 Suspend movement of irradiated fuel assemblies within the reactor building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify each required reactor building penetration is in the required status.	In accordance with the Surveillance Frequency Control Program
SR 3.9.3.2	----------NOTE---------- Not required to be met for reactor building isolation valves and reactor building purge isolation valves in penetrations closed to comply with LCO c.1. ----------	
	Verify each required reactor building isolation valve and each reactor building purge isolation valve actuates to the isolation position.	In accordance with the Surveillance Frequency Control Program
SR 3.9.3.3	Perform CHANNEL CALIBRATION of reactor building purge exhaust radiation monitor.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

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

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

---NOTE---
The required DHR loop may be removed from operation for ≤ 1 hour per 8 hour period, provided no operations are permitted that would cause introduction into the Reactor Coolant System, coolant with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1.

APPLICABILITY: MODE 6 with the water level ≥ 23 ft above the top of the irradiated fuel seated in the reactor pressure vessel.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. DHR loop requirements not met.	A.1	Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
	AND		
	A.2	Suspend loading irradiated fuel assemblies in the core.	Immediately
	AND		
	A.3	Initiate action to satisfy DHR loop requirements.	Immediately
	AND		
	A.4	Close all reactor building penetrations providing direct access from the reactor building atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify one DHR loop is in operation.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

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

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

---NOTE---

1. All DHR pumps may be de-energized for ≤ 15 minutes when switching from one train to another provided:

   a. The core outlet temperature is maintained > 10 degrees F below saturation temperature;

   b. No operations are permitted that would cause a reduction of the Reactor Coolant System boron concentration; and

   c. No draining operations to further reduce RCS water volume are permitted.

2. One required DHR loop may be inoperable for up to 2 hours for surveillance testing, provided that the other DHR loop is OPERABLE and in operation.

APPLICABILITY: MODE 6 with the water level < 23 feet above the top of the irradiated fuel seated in the reactor pressure vessel.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Less than required number of DHR loops OPERABLE.	A.1	Initiate action to restore DHR loop to OPERABLE status.	Immediately
	OR		
	A.2	Initiate action to establish ≥ 23 feet of water above the top of the irradiated fuel seated in the reactor pressure vessel.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No DHR loop OPERABLE or in operation.	B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
	AND	
	B.2 Initiate action to restore one DHR loop to OPERABLE status and to operation.	Immediately
	AND	
	B.3 Close all reactor building penetrations providing direct access from the reactor building atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one DHR loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to each required DHR pump.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.6 Refueling Canal Water Level

LCO 3.9.6 Refueling canal water level shall be maintained ≥ 23 feet above the top of the irradiated fuel assemblies seated within the reactor pressure vessel.

APPLICABILITY: During movement of irradiated fuel assemblies within the reactor building.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify refueling canal water level is ≥ 23 feet above the top of irradiated fuel assemblies seated within the reactor pressure vessel.	In accordance with the Surveillance Frequency Control Program

4.0 DESIGN FEATURES

4.1 Site Location

The site for Arkansas Nuclear One is located in Pope County, Arkansas on the north bank of the Dardanelle Reservoir (Arkansas River), approximately 6 miles west-northwest of Russellville, AR. The exclusion area boundary shall have a radius of 0.65 statute miles from the Unit 1 reactor building.

4.0 DESIGN FEATURES

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain 177 fuel assemblies. Each assembly shall consist of a matrix of Zircaloy or M5 clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material. Limited substitutions of stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods, and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.

4.2.2 Control Assemblies

The reactor core shall contain 60 safety and regulating CONTROL ROD assemblies and 8 APSR assemblies. The CONTROL ROD assembly control material shall be a silver-indium-cadmium alloy and the APSR assembly control material shall be an Inconel alloy, as approved by the NRC.

4.0 DESIGN FEATURES

4.3 Fuel Storage

4.2.1 Criticality

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

a. Fuel assemblies having a maximum U-235 enrichment of 4.95 weight percent;

b. $k_{eff} \leq 0.95$ if fully flooded with 444 ppm of borated water, which includes an allowance for uncertainties as described in Section 9.6.2.4.3 of the SAR;

c. $k_{eff} < 1.0$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.6.2.4.3 of the SAR;

d. A nominal 10.65 inch center to center distance between fuel assemblies placed in the storage racks;

e. New or partially spent fuel assemblies stored in accordance with Table 3.7.15-1 in the spent fuel storage racks;

f. New or partially spent fuel assemblies with cooling times, U-235 enrichment or discharge burnup in the unacceptable range of Table 3.7.15-1 for fuel assemblies stored in Region 1 or Region 2 may be stored in a 2 x 2 checkerboard configuration (i.e., 2 assemblies and 2 empty cells); and

g. Neutron absorber (Metamic) installed between fuel assemblies in the Region 3 racks.

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

a. Fuel assemblies having a maximum U-235 enrichment of 4.95 weight percent;

b. $k_{eff} \leq 0.95$ under normal conditions, which includes an allowance for uncertainties as described in Section 9.6.2.4.3 of the SAR;

c. $k_{eff} \leq 0.98$ with optimum moderation, which includes an allowance for uncertainties as described in Section 9.6.2.4.3 of the SAR;

d. A nominal 21 inch center to center distance between fuel assemblies placed in the storage racks; and

e. Fuel assembly loading prohibited in interior storage cells as shown in Figures 4.3.1.2-1 and 4.3.1.2-2, based on U-235 fuel enrichment.

DESIGN FEATURES

4.3 Fuel Storage

4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 397 ft.

4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 968 fuel assemblies.

Figure 4.3.1.2-1

Fresh Fuel Storage Rack
Loading Pattern for a Maximum Enrichment of 4.95 wt% U-235

← NORTH

			NO	NO			
			NO	NO			
			NO	NO			
			NO	NO			
			NO	NO			

"NO" Indicates a location in which fuel loading is prohibited.

Figure 4.3.1.2-2

Fresh Fuel Storage Rack
Loading Pattern for a Maximum Enrichment of 4.2 wt% U-235

← NORTH

			NO	NO			
		NO	NO	NO	NO		
			NO	NO			

"NO" Indicates a location in which fuel loading is prohibited.

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

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

5.1.2 An individual with an active Senior Reactor Operator (SRO) license shall be designated as responsible for the control room command function while the unit is in MODE 1, 2, 3, or 4. With the unit not in MODES 1, 2, 3, or 4, an individual with an active SRO or Reactor Operator license shall be designated as responsible for 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 unit.

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 unit specific titles of those personnel fulfilling the responsibilities of the positions delineated in these Technical Specifications, shall be documented in the Safety Analysis Report (SAR);

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

c. A specified corporate executive shall have corporate responsibility for overall unit nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the unit to ensure nuclear safety. The specified corporate executive shall be identified in the SAR; and

d. The individuals who train the operating staff, carry out health physics, or perform quality assurance functions may report to the appropriate onsite manager; however, these individuals shall have sufficient organizational freedom to ensure their independence from operating pressures.

5.2.2 Unit Staff

a. A non-licensed operator shall be on site when fuel is in the reactor and two additional non-licensed operators shall be on site when the reactor is in MODES 1, 2, 3, or 4.

b. The minimum shift crew composition for licensed operators shall meet the minimum staffing requirements of 10 CFR 50.54(m)(2)(i) for one unit, one control room.

5.0 ADMINSTRATIVE CONTROLS

5.2 Organization

c. Shift crew composition may be less than the minimum requirement of 10 CFR 50.54(m)(2)(i) for one unit, one control room, and 5.2.2.a and 5.2.2.f for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements.

d. An individual qualified in radiation protection procedures shall be on site when fuel is in the reactor. The position may be vacant for not more than 2 hours, in order to provide for unexpected absence, provided immediate action is taken to fill the required position.

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

f. When in MODES 1, 2, 3, or 4 an individual shall provide advisory technical support to the unit operations shift crew in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operations of the unit. This individual shall meet the qualifications specified by ANSI/ANS 3.1-1993 as endorsed by RG 1.8, Rev. 3, 2000.

5.0 ADMINSTRATIVE CONTROLS

5.3 Unit Staff Qualifications

5.3.1 Each member of the unit staff shall meet or exceed the minimum qualifications of ANSI/ANS 3.1-1978 for comparable positions with exceptions specified in the Entergy Quality Assurance Program Manual (QAPM).

5.3.2 For the purpose of 10 CFR 55.4, a licensed Senior Reactor Operator (SRO) and a licensed Reactor Operator (RO) are those individuals who, in addition to meeting the requirements of Specification 5.3.1, perform the functions described in 10 CFR 50.54(m).

5.0 ADMINSTRATIVE 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 Section 7.1 of Generic Letter 82-33; and

c. Deleted

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)

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

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.

Licensee initiated changes to the ODCM:

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

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

   2. a determination that the change(s) maintain the levels of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, and 10 CFR 50, Appendix I, and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations;

b. Shall become effective after the approval of the ANO general manager; and

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

5.0 ADMINSTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The program shall include the following:

a. Preventive maintenance and periodic visual inspection requirements; and

b. Integrated leak test requirements for each system at a frequency in accordance with the Surveillance Frequency Control Program. The provisions of SR 3.0.2 are applicable.

5.5.3 Iodine Monitoring

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

a. Training of personnel;

b. Procedures for monitoring; and

c. Provisions for maintenance of sampling and analysis equipment.

5.5.4 Radioactive Effluent Controls Program

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

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

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

5.0 ADMINSTRATIVE CONTROLS

5.5 Programs and Manuals

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

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

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

f. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2% of the guidelines for the annual dose or dose commitment, conforming to 10 CFR 50, Appendix I;

g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary conforming to the dose associated with 10 CFR 20, Appendix B, Table II, Column 1;

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

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

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

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

Correction letter of 7-3-2002

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.5 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Ventilation System (CREVS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREVS, operating at the flow rate required by the VFTP, at a Frequency in accordance with the Surveillance Frequency Control Program. The results shall be trended and used as part of the CRE boundary assessment specified in TS 5.5.5.c.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.6 Battery Monitoring and Maintenance Program

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

a. The program allows the following RG 1.129, Revision 2 exceptions:

1. Battery temperature correction may be performed before or after conducting discharge tests.

2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.

3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."

4. In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage."

5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration", the following may be used: "Following the test, record the float voltage of each cell of the string."

b. The program shall include the following provisions:

1. Actions to restore battery cells with float voltage < 2.13 V;

2. Actions to determine whether the float voltage of the remaining battery cells is ≥ 2.13 V when the float voltage of a battery cell has been found to be < 2.13 V;

3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;

4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and

5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.7 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel. Surface and volumetric examination of the reactor coolant pump flywheels will be conducted coincident with refueling or maintenance shutdowns such that during 10 year intervals all four reactor coolant pump flywheels will be examined. Such examinations will be performed to the extent possible through the access ports, i.e., those areas of the flywheel accessible without motor disassembly. The surface and volumetric examination may be accomplished by Acoustic Emission Examination as an initial examination method. Should the results of the Acoustic Emission Examination indicate that additional examination is necessary to ensure the structural integrity of the flywheel, then other appropriate NDE methods will be performed on the area of concern.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Reactor Coolant Pump Flywheel Inspection Program inspection frequencies.

5.5.8 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Program

An SG Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the SG Program shall include the following:

a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the "as found" condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The "as found" condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged to confirm that the performance criteria are being met.

b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.

1. Structural integrity performance criterion: All in-service SG tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down), all anticipated transients included in the design specification, and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary to secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary to secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 1 gpm.

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.13, "RCS Operational LEAKAGE."

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

c. Provisions for SG tube plugging criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet, and that may satisfy the applicable tube plugging criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. A degradation assessment shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

1. Inspect 100% of the tubes in each SG during the first refueling outage following SG installation.

2. After the first refueling outage following SG installation, inspect 100% of the tubes in each SG at least every 96 effective full power months, which defines the inspection period.

3. If crack indications are found in any SG tube, then the next inspection for each affected and potentially affected SG for the degradation mechanism that caused the crack indication shall be at the next refueling outage. If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary to secondary LEAKAGE.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.10 Secondary Water Chemistry

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation. The program shall include:

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

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

c. Identification of process sampling points;

d. Procedures for the recording and management of data;

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

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

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.11 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safeguards (ES) ventilation systems filters at the frequencies specified in Regulatory Guide 1.52, Revision 2. The VFTP is applicable to the Penetration Room Ventilation System (PRVS) and the Control Room Emergency Ventilation System (CREVS).

a. Demonstrate that an inplace cold DOP test of the high efficiency particulate (HEPA) filters shows:

   1. ≥ 99% DOP removal for the PRVS when tested at the system design flowrate of 1800 scfm ± 10%; and

   2. ≥ 99.95% DOP removal for the CREVS when tested in accordance with Regulatory Guide 1.52, Revision 2, at the system design flowrate of 2000 cfm ± 10%.

b. Demonstrate that an inplace halogenated hydrocarbon test of the charcoal adsorbers shows:

   1. ≥ 99% halogenated hydrocarbon removal for the PRVS when tested at the system design flowrate of 1800 cfm ± 10%; and

   2. ≥ 99.95% halogenated hydrocarbon removal for the CREVS when tested in accordance with Regulatory Guide 1.52, Revision 2, at the system design flowrate of 2000 cfm ± 10%.

c. Demonstrate that a laboratory test of a sample of the charcoal adsorber meets the laboratory testing criteria of ASTM D3803-1989 when tested at 30°C and 95% relative humidity for a methyl iodide penetration of:

   1. < 5% for the PRVS;

   2. when obtained as described in Regulatory Guide 1.52, Revision 2, for CREVS

      i. ≤ 2.5% for 2 inch charcoal adsorber beds; and

      ii. ≤ 0.5% for 4 inch charcoal adsorber beds.

d. Demonstrate for the PRVS and CREVS, that the pressure drop across the combined HEPA filters, other filters in the system, and the charcoal adsorbers is < 6 inches of water when tested at the following system design flowrates ± 10%:

PRVS	1800 cfm
CREVS	2000 cfm

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

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.12 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the Waste Gas System, the quantity of radioactivity contained in gas storage tanks, and the quantity of radioactivity contained in unprotected temporary outdoor liquid storage tanks. The gaseous radioactivity quantities shall be determined following the methodology in Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure." The liquid radwaste quantities shall be determined in accordance with the ODCM.

The program shall include:

a. The limits for concentrations of hydrogen and oxygen in the Waste 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);

b. A surveillance program to ensure that the quantity of radioactivity contained in each gas storage tank is less than the amount that would result in a whole body exposure of $\geq$ 0.5 rem to any individual in an unrestricted area, in the event of an uncontrolled release of the tanks' contents;

c. A surveillance program to ensure that the quantity of radioactivity contained in all temporary outdoor liquid radwaste tanks: 1) that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents; and 2) 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 equal to the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

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

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.13 Diesel Fuel Oil Testing Program

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

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

   1. an API gravity or an absolute specific gravity within limits,

   2. a flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

   3. water and sediment within limits;

b. Within 31 days following addition of new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a. above, are within limits for ASTM 2D fuel oil;

c. Total particulate concentration of the fuel oil is $\leq$ 10 mg/l when tested based on ASTM D-2276, Method A-2 or A-3 at a Frequency in accordance with the Surveillance Frequency Control Program; and

d. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program surveillance Frequencies.

5.5.14 Technical Specifications (TS) Bases Control Program

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

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

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

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

   2. A change to the updated SAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

   Proposed changes that do meet these criteria 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).

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

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.15 Safety Function Determination Program (SFDP)

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

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

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

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

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, and assuming no concurrent loss of offsite power or loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable; or

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

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

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.16 Reactor Building Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the reactor building as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in NEI 94-01, Revision 2-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J," dated October 2008. The next Type A test performed after the December 16, 2005 Type A test shall be performed no later than December 16, 2020.

In addition, the reactor building purge supply and exhaust isolation valves shall be leakage rate tested once prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days.

The peak calculated reactor building internal pressure for the design basis loss of coolant accident, P_a, is 54 psig.

The maximum allowable reactor building leakage rate, L_a, shall be 0.20% of containment air weight per day at P_a.

Leakage rate acceptance criteria are:

a. Reactor Building leakage rate acceptance criteria is $\leq 1.0\ L_a$. During the first unit startup following each test performed in accordance with this program, the leakage rate acceptance criteria are $< 0.60\ L_a$ for the Type B and Type C tests and $< 0.75\ L_a$ for Type A tests.

b. Air lock testing acceptance criteria are:

   1. Overall air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$;

   2. For each door, leakage rate is $\leq 0.01\ L_a$ when tested at ≥ 10 psig.

The provisions of SR 3.0.2 do not apply to the test frequencies specified in the Reactor Building Leakage Rate Testing Program.

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

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.17 Metamic Coupon Sampling Program

A coupon surveillance program will be implemented to maintain surveillance of the Metamic absorber material under the radiation, chemical, and thermal environment of the SFP. The purpose of the program is to establish the following:

- Coupons will be examined on a two year basis for the first three intervals with the first coupon retrieved for inspection being on or before February 2009 and thereafter at increasing intervals over the service life of the inserts.

- Measurements to be performed at each inspection will be as follows:

  A) Physical observations of the surface appearance to detect pitting, swelling or other degradation,

  B) Length, width, and thickness measurements to monitor for bulging and swelling

  C) Weight and density to monitor for material loss, and

  D) Neutron attenuation to confirm the B-10 concentration or destructive chemical testing to determine the boron content.

- The provisions of SR 3.0.2 are applicable to the Metamic Coupon Sampling Program.

- The provisions of SR 3.0.3 are not applicable to the Metamic Coupon Sampling Program.

5.5.18 Risk Informed Completion Time Program

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI 06-09-A, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines." The program shall include the following:

a. The RICT may not exceed 30 days;

b. A RICT may only be utilized in MODE 1 and 2;

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

c. When a RICT is being used, any change to the plant configuration, as defined in NEI 06-09-A, Appendix A, must be considered for the effect on the RICT.

1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.

2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

3. Revising the RICT is not required If the plant configuration change would lower plant risk and would result in a longer RICT.

d. For emergent conditions, if the extent of condition evaluation for inoperable structures, systems, or components (SSCs) is not complete prior to exceeding the Completion Time, the RICT shall account for the increased possibility of common cause failure (CCF) by either:

1. Numerically accounting for the increased possibility of CCF in the RICT calculation; or

2. Risk Management Actions (RMAs) not already credited in the RICT calculation shall be implemented that support redundant or diverse SSCs that perform the function(s) of the inoperable SSCs, and, if practicable, reduce the frequency of initiating events that challenge the function(s) performed by the inoperable SSCs.

e. The risk assessment approaches and methods shall be acceptable to the NRC. The plant PRA shall be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant, as specified in Regulatory Guide 1.200, Revision 2. Methods to assess the risk from extending the Completion Times must be PRA methods approved for use with this program, or other methods approved by the NRC for generic use; and any change in the PRA methods to assess risk that are outside these approval boundaries require prior NRC approval.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

5.6.1 DELETED

5.6.2 Annual Radiological Environmental Operating Report

----------NOTE----------
A single submittal may be made for ANO. The submittal should combine sections common to both units.

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

5.6.2 Annual Radiological Environmental Operating Report (continued)

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

5.6.3 Radioactive Effluent Release Report

----------NOTE----------
A single submittal may be made for ANO. The submittal shall combine sections common to both units. The submittal shall specify the releases of radioactive material from each unit.

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

5.6.4 DELETED

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

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:

2.1.1 Variable Low RCS Pressure – Temperature Protective Limits
3.1.1 SHUTDOWN MARGIN (SDM)
3.1.8 PHYSICS TESTS Exceptions – MODE 1
3.1.9 PHYSICS TEST Exceptions - MODE 2
3.2.1 Regulating Rod Insertion Limits
3.2.2 AXIAL POWER SHAPING RODS (APSR) Insertion Limits
3.2.3 AXIAL POWER IMBALANCE Operating Limits
3.2.4 QUADRANT POWER TILT (QPT)
3.2.5 Power Peaking
3.3.1 Reactor Protection System (RPS) Instrumentation
3.4.1 RCS Pressure, Temperature, and Flow DNB limits
3.4.4 RCS Loops – MODES 1 and 2
3.9.1 Boron Concentration

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:

Babcock & Wilcox Topical Report BAW-10179-A, "Safety Criteria and Methodology for Acceptable Cycle Reload Analyses" (the approved revision at the time the reload analyses are performed). The approved revision number shall be identified in the COLR.

Entergy Topical Report ENEAD-01-P, "Qualification of Reactor Physics Methods for the Pressurized Water Reactors of the Entergy System" (the approved revision at the time the reload analyses are performed). The approved revision number shall be identified in the COLR.

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling System (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

5.6.6 Reactor Building Inspection Report

Any degradation exceeding the acceptance criteria of the containment structure detected during the tests required by the Containment Inspection Program shall undergo an engineering evaluation within 60 days of the completion of the inspection surveillance. The results of the engineering evaluation shall be reported to the NRC within an additional 30 days of the time the evaluation is completed. The report shall include the cause of the condition that does not meet the acceptance criteria, the applicability of the conditions to the other unit, the acceptability of the concrete containment without repair of the item, whether or not repair or replacement is required and, if required, the extent, method, and completion date of necessary repairs, and the extent, nature, and frequency of additional examinations.

5.6.7 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.9, "Steam Generator (SG) Program." The report shall include:

a. The scope of inspections performed on each SG;

b. The nondestructive examination techniques utilized for tubes with increased degradation susceptibility;

c. For each degradation mechanism found:

   1. The nondestructive examination techniques utilized;

   2. The location, orientation (if linear), measured size (if available), and voltage response for each indication. For tube wear at support structures less than 20 percent through-wall, only the total number of indications needs to be reported;

   3. A description of the condition monitoring assessment and results, including the margin to the tube integrity performance criteria and comparison with the margin predicted to exist at the inspection by the previous forward-looking tube integrity assessment; and

   4. The number of tubes plugged during the inspection outage.

d. An analysis summary of the tube integrity conditions predicted to exist at the next scheduled inspection (the forward-looking tube integrity assessment) relative to the applicable performance criteria, including the analysis methodology, inputs, and results;

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

e. The number and percentage of tubes plugged to date, and the effective plugging percentage in each SG; and

f. The results of any SG secondary side inspections.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

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

a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.

b. Access to, and activities in, each such area shall be controlled by means of Radiation Work Permit (RWP), or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

c. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

d. Each individual or group entering such an area shall possess:

1. A radiation monitoring device that continuously displays radiation dose rates in the area; or

2. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or

3. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

4. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,

   (i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or

   (ii) Be under the surveillance as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.

e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

5.7.2 <u>High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation</u>

a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door or gate that prevents unauthorized entry, and, in addition:

   1. All such door and gate keys shall be maintained under the administrative control of the shift manager, radiation protection manager, or his or her designee.

   2. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.

b. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

c. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

d. Each individual or group entering such an area shall possess:

1. A radiation monitoring device that continuously integrates the radiation rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or

2. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or

3. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,

(i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or

(ii) Be under the surveillance as specified in the RWP, or equivalent, while in the area by means of closed circuit television, or personnel qualified in radiation protection procedures responsible for controlling personnel radiation exposure in the area and with the means to communicate with individuals in the area who are covered by such surveillance.

4. In those cases where options (2) and (3), above, are impractical or determined to be inconsistent with the "As Low As is Reasonably Achievable" principle, a radiation monitoring device that continuously displays radiation dose rates in the area.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

f. Such individual areas that are within a larger area where no enclosure exists for the purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, nor continuously guarded, but shall be barricaded, conspicuously posted, and a clearly visible flashing light shall be activated at the area as a warning device.