INDIANA MICHIGAN POWER COMPANY

DOCKET NO. 50-315

DONALD C. COOK NUCLEAR PLANT, UNIT NO.1

RENEWED FACILITY OPERATING LICENSE NO. DPR-58

1. The U.S. Nuclear Regulatory Commission (the Commission) having previously made the findings set forth in License No. DPR-58 issued October 25, 1974, has now found that:

   A. The application to renew License No. DPR-58 filed by Indiana Michigan Power Company (I&M or the licensee) complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the rules and regulations of the Commission set forth in 10 CFR Chapter I and all required notifications to other agencies or bodies have been duly made;

   B. Construction of the Donald C. Cook Nuclear Plant, Unit No. 1 (the facility), has been completed in conformity with Construction Permit No. CPPR-60 and the application, as amended, the provisions of the Act and the rules and regulation of the Commission;

   C. 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 this renewed operating license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3, for the facility, and that any changes made to the facility'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;

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

   E. There is reasonable assurance: (i) that the activities authorized by this renewed operating 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;

   F. The licensee is technically and financially qualified to engage in the activities authorized by this renewed operating license in accordance with the rules and regulation of the Commission;

G. The licensee has satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;

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

I. After weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of this Renewed Facility Operating License No. DPR-58 subject to the conditions for protection of the environment set forth herein, is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied; and

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

2. On the basis of the foregoing findings regarding this facility, Facility Operating License No. DPR-58, issued October 25, 1974, is superseded by Renewed Facility Operating License No. DPR-58, which is hereby issued to Indiana Michigan Power Company to read as follows:

   A. This renewed operating license applies to the Donald C. Cook Nuclear Plant, Unit No. 1, a pressurized water nuclear reactor and associated equipment (the facility), owned by Indiana Michigan Power Company. The facility is located in Berrien County, Michigan and is described in the "Updated Final Safety Analysis Report," 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 Indiana Michigan Power Company:

      (1) 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 Berrien County, Michigan, in accordance with the procedures and limitations set forth in this renewed operating license;

      (2) Pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Updated Final Safety Analysis Report, as supplemented and amended;

      (3) 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;

(4) 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 or instrument and equipment calibration or associated with radioactive apparatus or components; and

(5) 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 operating 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; and 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) <u>Maximum Power Level</u>

The licensee is authorized to operate the facility at steady state reactor core power levels not to exceed 3304 megawatts thermal in accordance with the conditions specified herein.

(2) <u>Technical Specifications</u>

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 361, are hereby incorporated in this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) <u>Less than Four Loop Operation</u>

The licensee shall not operate the reactor at power levels above P-7 (as defined in Table 3.3.1-1 of Specification 3.3.1 of Appendix A to this renewed operating license) with less than four reactor coolant loops in operation until (a) safety analyses for less than four loop operation have been submitted, and (b) approval for less than four loop operation at power levels above P-7 has been granted by the Commission by amendment of this license.

(4) <u>Fire Protection Program</u>

Indiana Michigan Power Company 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's amendment request dated July 1, 2011, as supplemented by letters dated September 2, 2011, April 27, 2012, June 29, 2012, August 9, 2012, October 15, 2012, November 9, 2012, January 14, 2013, February 1, 2013, May 1, 2013, June 21, 2013, and September 16, 2013; and the license amendment request dated November 7, 2017, as supplemented by letter dated May 4, 2018, and as approved in the Safety Evaluations dated October 24, 2013 and July 6, 2018. 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.

(a) 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 the plant. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed Fire PRA (FPRA) 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 $1x10^{-7}$/year (yr) for CDF and less than $1x10^{-8}$/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.

(b) Other Changes that May Be Made Without Prior NRC Approval

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

   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 an 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 safety evaluation dated October 24, 2013, 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.

(c) Transition License Conditions

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by 2.C.(4)(c)2. below, risk- informed changes to the licensee's 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.C.(4)(b)2. above.

2. The licensee shall implement the modifications to its facility, as described in Enclosure 5, Attachment S, Table S-2, "Plant Modifications Committed," of I&M letter AEP-NRC-2013-75, dated September 16, 2013, to complete the transition to full compliance with 10 CFR 50.48(c) by October 24, 2014. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

3. The licensee shall implement the items listed in Enclosure 5, Attachment S, Table S-3, "Implementation Items," of I&M letter AEP-NRC-2013-75, dated September 16, 2013, by October 24, 2014.

4. The licensee shall complete an FPRA focused scope peer review and resolve findings associated with the revised FPRA LERF values, prior to self-approval of changes that result in more than a minimal increase in risk.

5. The licensee shall complete a focused scope peer review and resolve findings of the PRA upgrade related to reduced mission times for cutsets containing a test and maintenance event combined with a running failure, prior to self-approval of changes that result in more than a minimal increase in risk.

(5) Deleted by Amendment No. 279

(6) Deleted by Amendment No. 80

(7) Deleted by Amendment No. 287

(8) Deleted by Amendment No. 279

(9) Deleted by Amendment No. 279

(10) Deleted by Amendment No. 279

(11) Deleted by Amendment No. 279

(12) The 72 hour allowed outage time of Technical Specifications 3.1.2.4 and 3.5.2, Action "a," which was entered at 0130 on January 13, 2005, may be extended by an additional 24 hours to complete repair and testing of the 1 West Centrifugal Charging Pump.

(13) The 72 hour allowed outage time of Technical Specifications 3.8.1.1 Action "a" may be extended to 14 days one time for the 69 kilovolt (alternate) independent offsite power circuit when it is made inoperable to complete connection of the Supplemental Diesel Generators to the existing plant electrical system and to perform upgrades to the alternate offsite power supply circuit.

(14) Implementation of Amendment No. 287

This amendment authorizes the relocation of certain current Technical Specification requirements and operating license conditions to other licensee-controlled documents. Implementation of this amendment shall include the relocation of these requirements to the other documents, as described in (1) Section 5.0 of the NRC staff's Safety Evaluation and (2) Table LA of Removed Details and Table R of Relocated Specifications attached to the NRC staff's Safety Evaluation, which is enclosed with this amendment.

The schedule for the performance of new and revised Surveillance Requirements (SRs) shall be as follows:

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

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

For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance is 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, except as noted below for SRs that have modified acceptance criteria as a result of revised allowable values.

For SRs that have modified acceptance criteria as a result of revised allowable values, the current allowable Values and current channel calibration frequencies are required to be met until the trip setpoints are changed to reflect the new allowable values and channel calibration frequencies. The trip setpoints are required to be changed no later than the unit startup after the first planned outage of sufficient duration to change all of the trip setpoints for the unit following implementation of this amendment.

For SRs that existed prior to this amendment whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to implementation of this amendment, except as noted above for SRs that have modified acceptance criteria as a result of revised allowable values.

(15) Mitigation Strategy License Condition

Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

(a) Fire fighting response strategy with the following elements:
1. Pre-defined coordinated fire response strategy and guidance
2. Assessment of mutual aid fire fighting assets
3. Designated staging areas for equipment and materials
4. Command and control
5. Training of response personnel

(b) Operations to mitigate fuel damage considering the following:
1. Protecton and use of personnel assets
2. Communications
3. Minimizing fire spread
4. Procedures for implementing integrated fire response strategy
5. Identification of readily-available pre-staged equipment
6. Training on integrated fire response strategy
7. Spent fuel pool mitgation measures

(c) Actions to minimize release to include consideration of:
1. Water spray scrubbing
2. Dose to onsite responders

(16) The licensee shall implement and maintain all Actions required by Attachment 2 to NRC Order EA-06-137, issued June 20, 2006, except the last action that requires incorporation of the strategies into the site security plan, contingency plan, emergency plan and/or guard training and qualification plan, as appropriate.

(17) Ice Condenser Ice Fusion Time Requirement

The licensee is authorized to change the Updated Final Safety Analysis Report (UFSAR) to allow inspection of each ice condenser within 24 hours of experiencing a seismic event greater than or equal to an operating-basis earthquake within the 5-week period after ice basket replenishment has been completed to confirm that adverse ice fallout has not occurred which could impede the ability of the ice condenser lower inlet doors to open. This action would be taken, in lieu of requiring a 5-week waiting period following ice basket replenishment, prior to beginning ascension to power operations, as set forth in the application for amendment dated February 29, 2008, and evaluated in the safety evaluation accompanying Amendment No. 303. The licensee shall update the UFSAR by adding a description of this change, as authorized by this amendment, and in accordance with 10 CFR 50.71(e).

(18) Upon implementation of Amendment No. 307 adopting TSTF-448, Revision 3, the determination of CRE unfiltered air inleakage as required by SR 3.7.10.4, in accordance with TS 5.5.16.c.(i), the assessment of CRE habitability as required by TS 5.5.16.c.(ii), and the measurement of CRE pressure as required by TS 5.5.16.d, shall be considered met. Following implementation:

(a) The first performance of SR 3.7.10.4, in accordance with TS 5.5.16.c.(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 3.0.2, as measured from June 1999, the date of the most recent successful tracer gas test, as stated in the December 4, 2003, letter response to Generic Letter 2003-01, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years.

(b) The first performance of the periodic assessment of CRE habitability, TS 5.5.16.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from June 1999, the date of the most recent successful tracer gas test, as stated in the December 4, 2003, letter response to Generic Letter 2003-01, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

(c) The first performance of the periodic measurement of CRE pressure, TS 5.5.16.d, shall be within 24 months, plus the 182 days allowed by SR 3.0.2, as measured from the date of the most recent successful pressure measurement test, or within 182 days if not performed previously.

(19) Operation with Vacuum Fill:

The licensee is authorized to operate the facility using Reactor Coolant System (RCS) vacuum fill operation in accordance with TS 3.4.3, "RCS Pressure and Temperature (P/T) Limits," with corresponding revisions to Figure 3.4.3-1, "Reactor Coolant System Pressure versus Temperature Limits - Heatup Limit, Criticality Limit, and Leak Test Limit (Applicable for service period up to 32 EFPY)," and Figure 3.4.3-2, "Reactor Coolant System Pressure versus Temperature Limits - Various Cooldown Rates Limits (Applicable for service period up to 32 EFPY)," as approved in License Amendment No. 323 to Renewed Facility Operating License No. DPR-58. This includes an approved extension to -14.7 pounds per square inch gage to bound the RCS conditions required to support vacuum fill operation. The licensee shall submit an analysis of the P/T curves in Figures 3.4.3-1 and 3.4.3-2 within one year of the date of issuance of License Amendment No. 323, which demonstrates consideration of all ferritic reactor vessel materials as defined in Appendix G to 10 CFR Part 50, including non-beltline ferritic reactor vessel materials."

(20) The licensee shall implement the items listed in Enclosure 2, Table 1, of I&M letter AEP-NRC-2016-69, dated September 9, 2016, prior to Surveillance Frequency Control Program implementation.

D. Physical Protection

The Indiana Michigan Power Company 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 revision to 10 CFR 73.55 (51 FR 27817 and 27822), and the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans[1], which contain Safeguards Information protected under 10 CFR 73.21, is entitled: "Donald C. Cook Nuclear Plant Security Plan, Training and Qualification Plan, and Safeguards Contingency Plan, Revision 1," submitted by letter dated May 10, 2006.

The Indiana and Michigan Power Company shall fully implement and maintain in effect all provisions of the Commission-approved Donald C. Cook Nuclear Plant Cyber Security Plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Donald C. Cook Nuclear Plant CSP was approved by License Amendment No. 315 as supplemented by changes approved by License Amendment Nos. 319, 325, and 333.

E. Deleted by Amendment No. 80

F. Deleted by Amendment No. 80

[1] The Training and Qualification Plan and Safeguards Contingency Plan are Appendices to the Security Plan

G. In all places of this renewed operating license, the reference to the Indiana and Michigan Electric Company is amended to read Indiana Michigan Power Company.

H. Deleted by Amendment No. 287

I. Deleted by Amendment No. 287

J. The licensee is authorized to use digital signal processing instrumentation in the reactor protection system.

K. Updated Final Safety Analysis Report

The Indiana Michigan Power Company Updated Final Safety Analysis Report supplement, submitted pursuant to 10 CFR 54.21(d), describes certain future activities to be completed prior to the period of extended operation. The Indiana Michigan Power Company shall complete these activities no later than October 25, 2014, and shall notify the NRC in writing when implementation of these activities is complete and can be verified by NRC inspection.

The Updated Final Safety Analysis Report supplement, as revised, shall be included in the next scheduled update to the Updated Final Safety Analysis Report required by 10 CFR 50.71(e)(4) following issuance of this renewed operating license. Until that update is complete, Indiana Michigan Power Company may make changes to the programs and activities described in the supplement without prior Commission approval, provided that Indiana Michigan Power Company evaluates such changes pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.

L. All capsules in the reactor vessel that are removed and tested must meet the test procedures and reporting requirements of ASTM E 185-82 to the extent practicable for the configuration of the specimens in the capsule. Any changes to the capsule withdrawal schedule, including spare capsules, must be approved by the NRC prior to implementation. All capsules placed in storage must be maintained for future insertion.

3. This renewed operating license is effective as of the date of issuance and shall expire at midnight, October 25, 2034.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

J. E. Dyer, Director
Office of Nuclear Reactor Regulation

Attachments:
1. Appendix A – Technical Specifications
2. Appendix B – Environmental Technical Specifications

Date of Issuance: August 30, 2005

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1.0 USE AND APPLICATION

1.1 Definitions

---NOTE---

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

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state required for OPERABILITY of a logic circuit and the verification of the required logic output. The ACTUATION LOGIC TEST, as a minimum, shall include a continuity check of output devices.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.
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. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps, 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.

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CHANNEL OPERATIONAL TEST (COT)	A COT 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 COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT 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.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Unit operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries per gram) that alone would produce the same dose when inhaled as the combined activities of iodine isotopes I-131, I-132, I-133, I-134, and I-135 actually present. The determination of DOSE EQUIVALENT I-131 shall be performed using thyroid dose conversion factors from Committed Dose Equivalent (CDE) or Committed Effective Dose Equivalent (CEDE) dose conversion factors from Table 2.1 of EPA Federal Guidance Report No. 11, "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

1.1 Definitions

	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.”
ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC, or the components have been evaluated in accordance with an NRC approved methodology.
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. Identified LEAKAGE

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;

2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known 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);

b. Unidentified LEAKAGE

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

1.1 Definitions

c. Pressure Boundary LEAKAGE

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.

MASTER RELAY TEST	A MASTER RELAY TEST shall consist of energizing all master relays in the channel required for channel OPERABILITY and verifying the OPERABILITY of each required master relay. The MASTER RELAY TEST shall include a continuity check of each associated required slave relay. The MASTER RELAY TEST may be performed by means of any series of sequential, overlapping, or total steps.
MODE	A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE – OPERABILITY	A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: a. Described in Chapter 13, Initial Tests and Operation, of the UFSAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
QUADRANT POWER TILT RATIO (QPTR)	QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.

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RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3304 MWt.
REACTOR TRIP SYSTEM (RTS) RESPONSE TIME	The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC, or the components have been evaluated in accordance with an NRC approved methodology.
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 rod cluster control assemblies (RCCAs) are fully inserted except for the single RCCA of highest reactivity worth, which is assumed to be fully withdrawn. With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM; and b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level.
SLAVE RELAY TEST	A SLAVE RELAY TEST shall consist of energizing all slave relays in the channel required for channel OPERABILITY and verifying the OPERABILITY of each required slave relay. The SLAVE RELAY TEST shall include a continuity check of associated required testable actuation devices. The SLAVE RELAY TEST may be performed by means of any series of sequential, overlapping, or total steps.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.

1.1 Definitions

THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)	A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy. The TADOT 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.

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTIVITY CONDITION (k_{eff})	% RATED THERMAL POWER[a]	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	≥ 0.99	> 5	NA
2	Startup	≥ 0.99	≤ 5	NA
3	Hot Standby	< 0.99	NA	≥ 350
4	Hot Shutdown[b]	< 0.99	NA	$350 > T_{avg} > 200$
5	Cold Shutdown[b]	< 0.99	NA	≤ 200
6	Refueling[c]	NA	NA	NA

(a) Excluding decay heat.

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

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

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE

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

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

BACKGROUND

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

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.3, requires declaring required features(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.

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.

1.3 Completion Times

DESCRIPTION (continued)

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.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ." Example 1.3-3 illustrates one use of this type of Completion Time. The 10 day Completion Time specified for Conditions A and B in Example 1.3-3 may not be extended.

1.3 Completion Times

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, Conditions A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

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.

<u>EXAMPLE 1.3-3</u>

ACTIONS

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

1.3 Completion Times

EXAMPLES (continued)

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

NOTE

Separate Condition entry is allowed for each inoperable valve.

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

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-6

ACTIONS

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

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

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

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

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 Surveillance or both.

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

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

Some Surveillances contain 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;

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, the Surveillance must be performed within the Frequency requirements of SR 3.0.2 prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

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

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

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

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 was 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 was not performed within this 12 hour interval, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

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

Example 1.4-4 specifies that the requirements of this Surveillance do not have to be met until the unit is in MODE 1. The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance was 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 was not met), SR 3.0.4 would require satisfying the SR.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-5

SURVEILLANCE REQUIREMENTS

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

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

As the Note modifies the required performance of the Surveillance, the Note is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is not in MODE 1, this Note allows entry into and operation in MODES 2 and 3 to perform the Surveillance. The Surveillance is still considered to be performed within the "specified Frequency" if completed prior to entering MODE 1. Therefore, if the Surveillance was 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 was 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 was 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 was 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

In MODES 1 and 2, the combination of THERMAL POWER, Reactor Coolant System (RCS) highest loop average temperature, and pressurizer pressure shall not exceed the limits specified in the COLR; and the following SLs shall not be exceeded:

2.1.1.1 The departure from nucleate boiling ratio (DNBR) shall be maintained ≥ 1.17 for the WRB-1 DNB correlation. W-3 DNB correlation with a DNB correlation limit of ≥ 1.30 is used where the WRB-1 DNB correlation is not applicable.

2.1.1.2 The peak fuel centerline temperature shall be maintained < 5080°F decreasing by 58°F per 10,000 MWD/MTU of burnup.

2.1.2 Reactor Coolant System Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained ≤ 2735 psig.

2.2 SAFETY LIMIT VIOLATIONS

2.2.1 If SL 2.1.1 is violated, be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1

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

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 5.5.13, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

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

LCO 3.0.7

Test Exception LCO 3.1.8, "PHYSIC TESTS Exceptions – MODE 2," allows specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

LCO 3.0.8

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

3.0 LCO Applicability

LCO 3.0.8 (continued)

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.
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.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.4 (continued)

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 SDM shall be within the limits specified in the COLR.

APPLICABILITY: MODE 2 with $k_{eff} < 1.0$,
MODES 3, 4, and 5.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify SDM to be within limits.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Core Reactivity

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	---------------------------NOTE--------------------------------- The predicted reactivity values must be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 effective full power days (EFPD) after each fuel loading. -- Verify measured core reactivity is within ± 1% $\Delta k/k$ of predicted values.	Prior to entering MODE 1 after each refueling <u>AND</u> --------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 maintained within the limits specified in the COLR. The maximum upper limit shall be that specified in Figure 3.1.3-1.

APPLICABILITY: MODE 1 and MODE 2 with $k_{eff} \geq 1.0$ for the upper MTC limit, MODES 1, 2, and 3 for the lower MTC limit.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. MTC not within upper limit.	A.1	Establish administrative withdrawal limits for control banks to maintain MTC within limit.	24 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 2 with $k_{eff} < 1.0$.	6 hours
C. MTC not within lower limit.	C.1	Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Verify MTC is within upper limit.	Prior to entering MODE 1 after each refueling

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.3.2	------------------------NOTE------------------------ Not required to be performed provided that the benchmark criteria in WCAP-13749-P-A and the Revised Prediction specified in the COLR are satisfied. --- Verify MTC is within lower limit.	Once each cycle within 7 effective full power days (EFPD) after reaching an equivalent of an equilibrium RTP all rods out (ARO) boron concentration of 300 ppm <u>AND</u> 14 EFPD thereafter if MTC is more negative than the 300 ppm Surveillance limit (not LCO limit) specified in the COLR until the MTC measured at the equivalent of equilibrium RTP-ARO boron concentration of ≤ 60 ppm is less negative than the 60 ppm Surveillance limit specified in the COLR

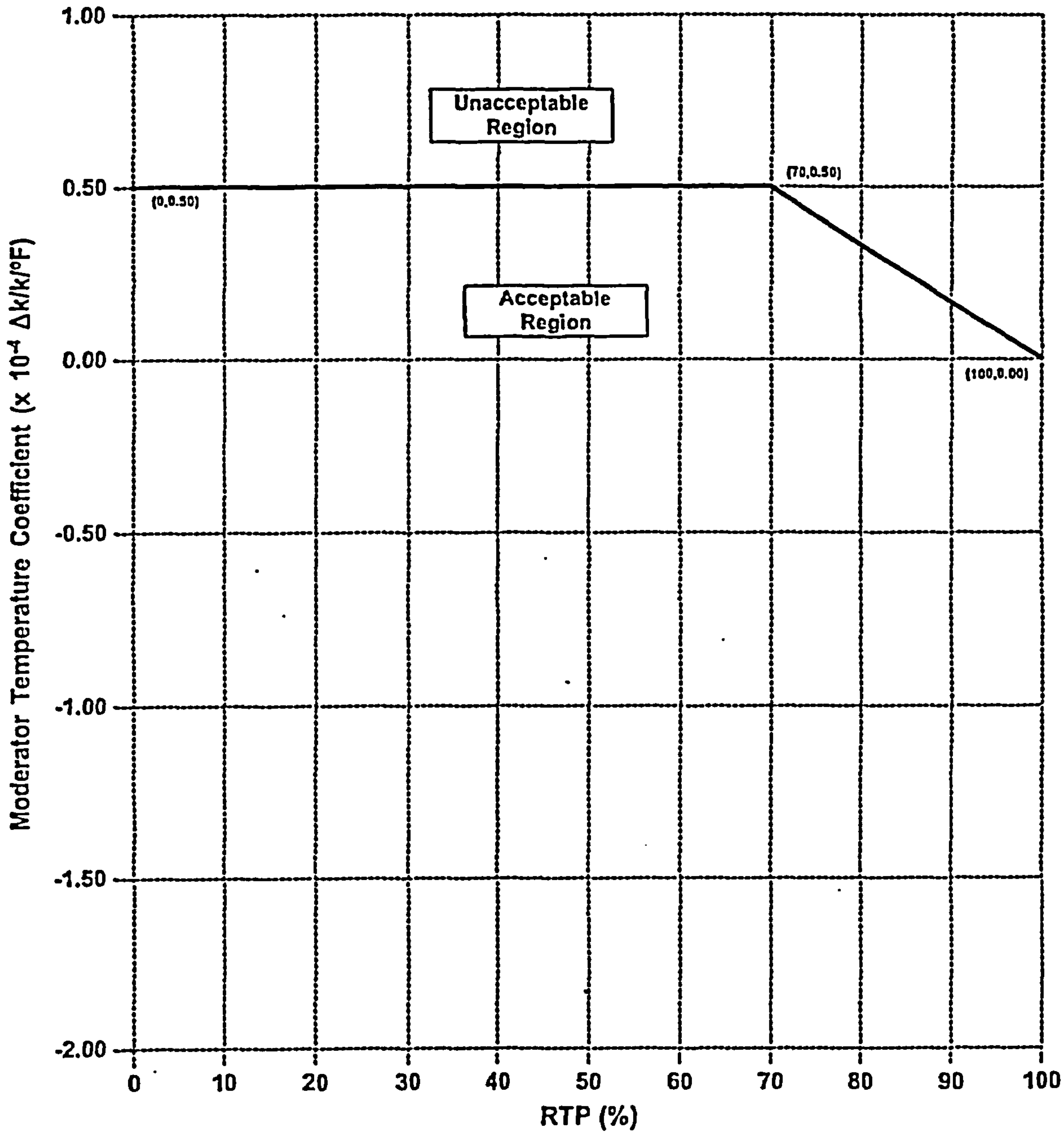


Figure 3.1.3-1 (page 1 of 1)
Moderator Temperature Coefficient versus Percent RATED THERMAL POWER

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 *Rod Group Alignment Limits*

LCO 3.1.4 All shutdown and control rods shall be OPERABLE.

AND

Individual indicated rod positions shall be as follows:

a. With THERMAL POWER ≤ 85% RTP, within 18 steps of their group step counter demand position; and

b. With THERMAL POWER > 85% RTP, within 12 steps of their *group step counter demand position or as determined from* Figure 3.1.4-1.

NOTE

The limits of Figure 3.1.4-1 are only applicable when R ≥ 1.04, where $R = \frac{F_{\Delta H}^{Limit\,@\,100\%RTP}}{F_{\Delta H}^{N}}$.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more rods inoperable.	A.1.1 Verify SDM is within limits.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limits.	1 hour
	AND	
	A.2 Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One rod not within alignment limits.	B.1.1 Verify SDM is within limits.	1 hour
	<u>OR</u>	
	B.1.2 Initiate boration to restore SDM to within limits.	1 hour
	<u>AND</u>	
	B.2 Reduce THERMAL POWER to ≤ 75% RTP.	2 hours
	<u>AND</u>	
	B.3 Verify SDM is within limits.	Once per 12 hours
	<u>AND</u>	
	B.4 Perform SR 3.2.1.1 and SR 3.2.1.2.	72 hours
	<u>AND</u>	
	B.5 Perform SR 3.2.2.1.	72 hours
	<u>AND</u>	
	B.6 Re-evaluate safety analyses and confirm results remain valid for duration of operation under these conditions.	5 days
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. More than one rod not within alignment limits.	D.1.1 Verify SDM is within limits.	1 hour
	OR	
	D.1.2 Initiate boration to restore required SDM to within limits.	1 hour
	AND	
	D.2 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify individual rod positions within alignment limits.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.2	Verify rod freedom of movement (trippability) by moving each rod not fully inserted in the core ≥ 8 steps in either direction.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.3	Verify rod drop time of each rod, from the fully withdrawn position, is ≤ 2.4 seconds from the beginning of decay of stationary gripper coil voltage to dashpot entry, with: a. T_{avg} ≥ 500°F; and b. All reactor coolant pumps operating.	Prior to criticality after each removal of the reactor head

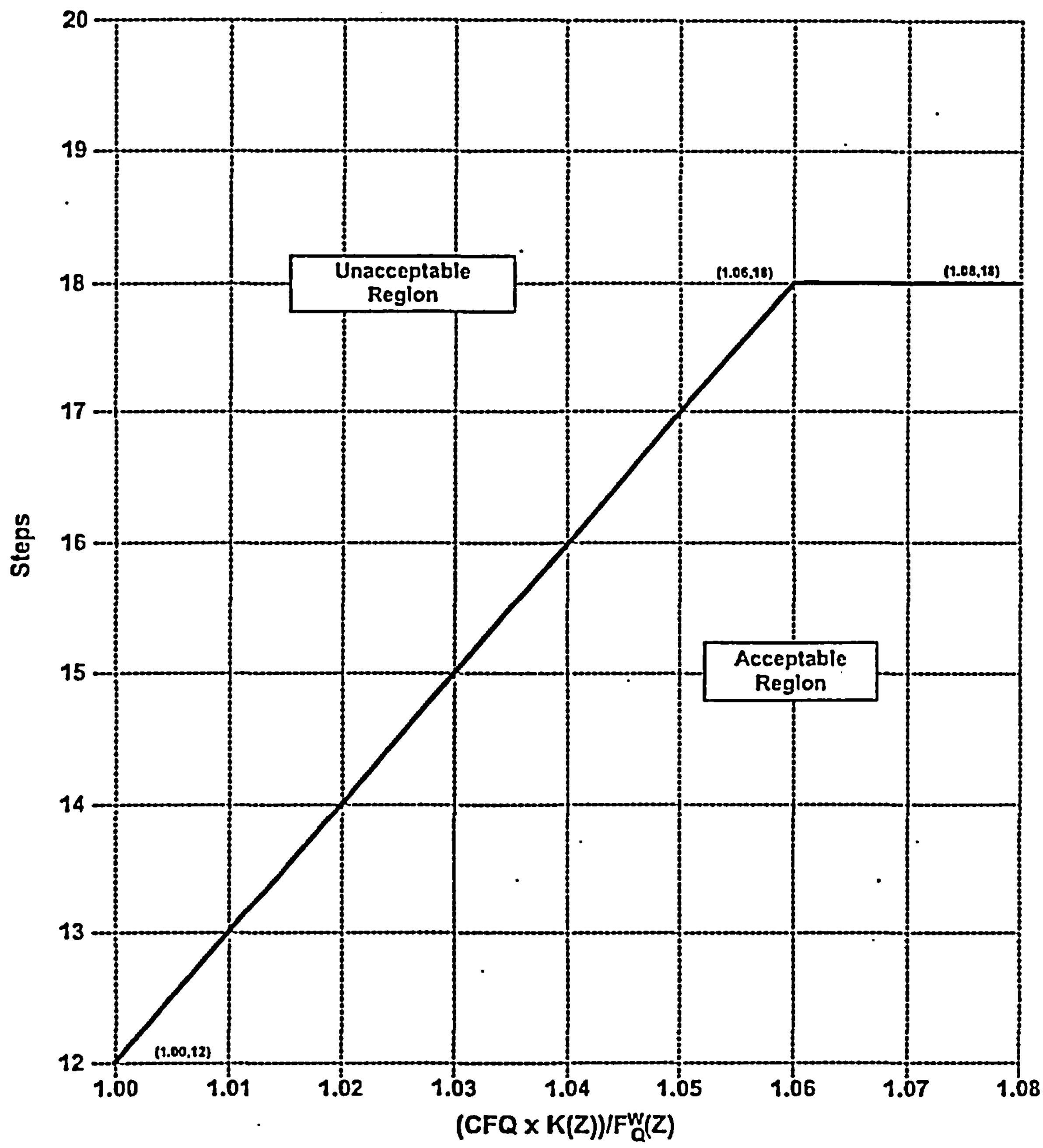


Figure 3.1.4-1 (page 1 of 1)
Allowed Rod Misalignment Above 85% RTP

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Shutdown Bank Insertion Limits

LCO 3.1.5 Each shutdown bank shall be within insertion limits specified in the COLR.

APPLICABILITY: MODES 1 and 2.

--NOTE--
This LCO is not applicable while performing SR 3.1.4.2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more shutdown banks not within limits.	A.1.1 Verify SDM is within limits. OR A.1.2 Initiate boration to restore SDM to within limits. AND A.2 Restore shutdown banks to within limits.	1 hour 1 hour 2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each shutdown bank is within the insertion limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Control Bank Insertion Limits

LCO 3.1.6 Control banks shall be within the insertion, sequence, and overlap limits specified in the COLR.

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

-----NOTE-----
This LCO is not applicable while performing SR 3.1.4.2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Control bank insertion limits not met.	A.1.1 Verify SDM is within limits.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limits.	1 hour
	AND	
	A.2 Restore control bank(s) to within limits.	2 hours
B. Control bank sequence or overlap limits not met.	B.1.1 Verify SDM is within limits.	1 hour
	OR	
	B.1.2 Initiate boration to restore SDM to within limits.	1 hour
	AND	
	B.2 Restore control bank sequence and overlap to within limits.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 2 with k_{eff} < 1.0.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify estimated critical control bank position is within the insertion limits specified in the COLR.	Within 4 hours prior to achieving criticality
SR 3.1.6.2	Verify each control bank insertion is within the insertion limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.1.6.3	Verify sequence and overlap limits specified in the COLR are met for control banks not fully withdrawn from the core.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Rod Position Indication

LCO 3.1.7 The Rod Position Indication (RPI) System and the Demand Position Indication System shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each rod position indicator and each demand position indicator.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RPI per group inoperable for one or more groups.	A.1 Verify the position of the rod with an inoperable position indicator indirectly by using movable incore detectors.	Once per 8 hours AND Once within 4 hours after a rod with an inoperable position indicator has been moved in excess of 24 steps in one direction since the last determination of the rod's position
	OR	
	A.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
B. More than one RPI per group inoperable.	B.1 Place the control rods under manual control. AND	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.2	Monitor and record Reactor Coolant System T_{avg}.	Once per 1 hour
	AND		
	B.3	Restore inoperable position indicators to OPERABLE status such that a maximum of one RPI per group is Inoperable.	24 hours
C. One demand position indicator per bank inoperable for one or more banks.	C.1.1	Verify by administrative means all RPIs for the affected bank are OPERABLE.	Once per 8 hours
	AND		
	C.1.2	Verify the most withdrawn rod and the least withdrawn rod of the affected bank are within the required rod misalignment limits.	Once per 8 hours
	OR		
	C.2	Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.7.1	-------------------------NOTE------------------------- The sensor may be excluded. -- Perform a CHANNEL CALIBRATION of each RPI.	Once prior to criticality after each removal of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 PHYSICS TESTS Exceptions – MODE 2

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

LCO 3.1.3, "Moderator Temperature Coefficient";
LCO 3.1.4, "Rod Group Alignment Limits";
LCO 3.1.5, "Shutdown Bank Insertion Limits";
LCO 3.1.6, "Control Bank Insertion Limits"; and
LCO 3.4.2, "RCS Minimum Temperature for Criticality"

may be suspended and the number of required channels for LCO 3.3.1, "RTS Instrumentation," Functions 2, 3, 6, and 18.d may be reduced to 3, provided that:

a. RCS lowest loop average temperature is ≥ 531°F;

b. SDM is within the limits for MODE 2 with k_{eff} < 1.0 specified in LCO 3.1.1, "SHUTDOWN MARGIN (SDM)"; and

c. THERMAL POWER is ≤ 5% RTP.

APPLICABILITY: During PHYSICS TESTS initiated in MODE 2.

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. RCS lowest loop average temperature not within limit.	C.1	Restore RCS lowest loop average temperature to within limit.	15 minutes
D. Required Action and associated Completion Time of Condition C not met.	D.1	Be in MODE 3.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	Verify the RCS lowest loop average temperature is ≥ 531°F.	In accordance with the Surveillance Frequency Control Program
SR 3.1.8.2	Verify THERMAL POWER is ≤ 5% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.1.8.3	Verify SDM is within the limits for MODE 2 with k_{eff} < 1.0 specified in LCO 3.1.1.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.1 Heat Flux Hot Channel Factor ($F_Q(Z)$)

LCO 3.2.1 $F_Q(Z)$, as approximated by $F_Q^C(Z)$ and $F_Q^W(Z)$, shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
------------NOTE------------ Required Action A.4 shall be completed whenever this Condition is entered. ------------------------------ A. $F_Q^C(Z)$ not within limit.	A.1 Reduce THERMAL POWER ≥ 1% RTP for each 1% $F_Q^C(Z)$ exceeds limit.	15 minutes after each $F_Q^C(Z)$ determination
	<u>AND</u>	
	A.2 Reduce Power Range Neutron Flux - High trip setpoints ≥ 1% for each 1% $F_Q^C(Z)$ exceeds limit.	72 hours after each $F_Q^C(Z)$ determination
	<u>AND</u>	
	A.3 Reduce Overpower ΔT trip setpoints ≥ 1% for each 1% $F_Q^C(Z)$ exceeds limit.	72 hours after each $F_Q^C(Z)$ determination
	<u>AND</u>	
	A.4 Perform SR 3.2.1.1 and SR 3.2.1.2.	Prior to increasing THERMAL POWER above the limit of Required Action A.1

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
------------NOTE------------ Required Action B.4 shall be completed whenever this Condition is entered. --------------------------------- B. $F_Q^W(Z)$ not within limit.	B.1	Reduce THERMAL POWER ≥ 1% RTP for each 1% $F_Q^W(Z)$ exceeds limit.	4 hours
	AND		
	B.2	Reduce Power Range Neutron Flux - High trip setpoints ≥ 1% for each 1% $F_Q^W(Z)$ exceeds limit.	72 hours
	AND		
	B.3	Reduce Overpower ΔT trip setpoints ≥ 1% for each 1% $F_Q^W(Z)$ exceeds limit.	72 hours
	AND		
	B.4	Perform SR 3.2.1.1 and SR 3.2.1.2.	Prior to increasing THERMAL POWER above the limit of Required Action B.1
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	-------------------------------NOTE------------------------------ Not required to be performed during power escalation at the beginning of each cycle until 24 hours after equilibrium conditions at a power level for extended operation are achieved. --- Verify $F_Q^C(Z)$ is within limit.	Once within 24 hours after achieving equilibrium conditions after exceeding, by ≥ 10% RTP, the THERMAL POWER at which $F_Q^C(Z)$ was last verified <u>AND</u> In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.2.1.2	-----------------------------NOTES----------------------------- 1. Not required to be performed during power escalation at the beginning of each cycle until 24 hours after equilibrium conditions at a power level for extended operation are achieved. 2. If measurements indicate that the maximum over Z ($F_Q^C(Z)/K(Z)$) or maximum over Z [$F_Q^C(Z)$*W(Z)/K(Z)] has increased since the previous evaluation of $F_Q^C(Z)$ or if $F_Q^W(Z)$ is expected to increase prior to the next evaluation of $F_Q^C(Z)$ either: a. Increase $F_Q^W(Z)$ by the greater of a factor of 1.02 or by an appropriate factor specified in the COLR and reverify $F_Q^W(Z)$ is within limits; or b. Repeat SR 3.2.1.2 once per 7 EFPD until either a. above is met or two successive flux maps indicate that the maximum over Z ($F_Q^C(Z)/K(Z)$) and maximum over Z [$F_Q^C(Z)$*W(Z)/K(Z)] have not increased. For this evaluation $F_Q^W(Z)$ is expected to increase if: max [$F_Q^C(Z, B_n)$*W(Z, B_{n+1})/K(Z)]> max [$F_Q^C(Z, B_n)$*W(Z, B_n)/K(Z)]; Where B_n is the burnup when the Surveillance is performed, and B_{n+1} is the burnup when the next Surveillance is performed. -- Verify $F_Q^W(Z)$ is within limit.	Once within 24 hours after achieving equilibrium conditions after exceeding, by ≥ 10% RTP, the THERMAL POWER at which $F_Q^W(Z)$ was last verified <u>AND</u> In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.2 Nuclear Enthalpy Rise Hot Channel Factor ($F^N_{\Delta H}$)

LCO 3.2.2 $F^N_{\Delta H}$ shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ------------NOTE------------ Required Actions A.2 and A.4 must be completed whenever Condition A is entered. ------------------------------ $F^N_{\Delta H}$ not within limit.	A.1 Reduce THERMAL POWER to < 50% RTP. AND A.2 Perform SR 3.2.2.1. AND A.3 Reduce Power Range Neutron Flux - High trip setpoints to ≤ 55% RTP. AND	4 hours 24 hours 72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.4	------------NOTE------------ THERMAL POWER does not have to be reduced to comply with this Required Action. -------------------------------- Perform SR 3.2.2.1.	Prior to THERMAL POWER exceeding 50% RTP AND Prior to THERMAL POWER exceeding 75% RTP AND 24 hours after THERMAL POWER reaching ≥ 95% RTP
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify $F^N_{\Delta H}$ is within limits specified in the COLR.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP <u>AND</u> In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.3 AXIAL FLUX DIFFERENCE (AFD)

LCO 3.2.3 The AFD:

a. Shall be maintained within the target band about the target flux difference. The target band is specified in the COLR.

b. May deviate outside the target band with THERMAL POWER less than the upper limit specified in the COLR but ≥ 50% RTP, provided AFD is within the acceptable operation limits and cumulative penalty deviation time is ≤ 1 hour during the previous 24 hours. The acceptable operation limits are specified in the COLR.

c. May deviate outside the target band with THERMAL POWER < 50% RTP.

-----NOTES-----

1. The AFD shall be considered outside the target band when two or more OPERABLE excore channels indicate AFD to be outside the target band.

2. With THERMAL POWER ≥ 50% RTP, penalty deviation time shall be accumulated on the basis of a 1 minute penalty deviation for each 1 minute of power operation with AFD outside the target band.

3. With THERMAL POWER < 50% RTP and > 15% RTP, penalty deviation time shall be accumulated on the basis of a 0.5 minute penalty deviation for each 1 minute of power operation with AFD outside the target band.

4. A total of 16 hours of operation may be accumulated with AFD outside the target band without penalty deviation time during surveillance of power range channels in accordance with SR 3.3.1.7, provided AFD is maintained within acceptable operation limits.

APPLICABILITY: MODE 1 with THERMAL POWER > 15% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. THERMAL POWER greater than or equal to the upper limit specified in the COLR. AND AFD not within the target band.	A.1	Restore AFD to within target band.	15 minutes
B. Required Action and associated Completion Time of Condition A not met.	B.1	Reduce THERMAL POWER to less than the upper limit specified in the COLR.	15 minutes
C. ----------NOTE---------- Required Action C.1 must be completed whenever Condition C is entered. -------------------------- THERMAL POWER less than the upper limit specified in the COLR and ≥ 50% RTP with cumulative penalty deviation time > 1 hour during the previous 24 hours. OR THERMAL POWER less than the upper limit specified in the COLR and ≥ 50% RTP with AFD not within the acceptable operation limits.	C.1	Reduce THERMAL POWER to < 50% RTP.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify AFD is within limits for each OPERABLE excore channel.	In accordance with the Surveillance Frequency Control Program
SR 3.2.3.2	Update target flux difference.	Once within 31 EFPD after each refueling <u>AND</u> In accordance with the Surveillance Frequency Control Program
SR 3.2.3.3	-------------------------------NOTE------------------------------ The initial target flux difference after each refueling may be determined from design predictions. --- Determine, by measurement, the target flux difference.	Once within 31 EFPD after each refueling <u>AND</u> In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.4 QUADRANT POWER TILT RATIO (QPTR)

LCO 3.2.4 The QPTR shall be $\leq$ 1.02.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. QPTR not within limit.	A.1 Reduce THERMAL POWER $\geq$ 3% from RTP for each 1% of QPTR > 1.00.	2 hours after each QPTR determination
	AND	
	A.2 Determine QPTR.	Once per 12 hours
	AND	
	A.3 Perform SR 3.2.1.1, SR 3.2.1.2, and SR 3.2.2.1.	24 hours after achieving equilibrium conditions from a THERMAL POWER reduction per Required Action A.1 AND Once per 7 days thereafter
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.4	Reevaluate safety analyses and confirm results remain valid for duration of operation under this condition.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
	AND		
	A.5	------------NOTES------------ 1. Perform Required Action A.5 only after Required Action A.4 is completed. 2. Required Action A.6 shall be completed whenever Required Action A.5 is performed. ----------------------------------- Normalize excore detectors to restore QPTR to within limit.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
	AND		
	A.6	------------NOTE------------ *Perform Required* Action A.6 only after Required Action A.5 is completed. ----------------------------------- Perform SR 3.2.1.1, SR 3.2.1.2, and SR 3.2.2.1.	Within 24 hours after achieving equilibrium conditions at RTP not to exceed 48 hours after increasing THERMAL POWER above the limit of Required Action A.1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ 50% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	-----------------------------NOTES---------------------------- 1. With input from one Power Range Neutron Flux channel inoperable and THERMAL POWER ≤ 75% RTP, the remaining three power range channels can be used for calculating QPTR. 2. SR 3.2.4.2 may be performed in lieu of this Surveillance. --- Verify QPTR is within limit by calculation.	In accordance with the Surveillance Frequency Control Program
SR 3.2.4.2	------------------------------NOTE----------------------------- Not required to be performed until 12 hours after input from one or more Power Range Neutron Flux channels are inoperable with THERMAL POWER > 75% RTP. --- Verify QPTR is within limit using the movable incore detectors.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).	Immediately
B. One channel or train inoperable.	B.1 Restore channel or train to OPERABLE status.	48 hours
C. One Power Range Neutron Flux - High channel inoperable.	C.1 -----NOTE----- The inoperable channel may be bypassed for up to 4 hours for surveillance testing and setpoint adjustment of other channels. ----- Place channel in trip.	6 hours
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	C.2	--------------NOTE--------------- Only required when the Power Range Neutron Flux input to QPTR is inoperable. ------------------------------------- Perform SR 3.2.4.2.	 12 hours from discovery of THERMAL POWER > 75% RTP AND Once per 12 hours thereafter
D. One channel inoperable.	D.1	--------------NOTES------------- 1. For Functions with installed bypass test capability, one channel may be bypassed for up to 4 hours for surveillance testing and setpoint adjustment. 2. For Functions with no installed bypass test capability, the inoperable channel, except for Function 11 channel, may be bypassed for up to 4 hours for surveillance testing of other channels. ------------------------------------- Place channel in trip.	 6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One Intermediate Range Neutron Flux channel inoperable.	E.1	Reduce THERMAL POWER to < P-6.	24 hours
	<u>OR</u>		
	E.2	Increase THERMAL POWER to > P-10.	24 hours
F. Two Intermediate Range Neutron Flux channels inoperable.	F.1	---------------NOTE--------------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. -------------------------------------	
		Suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>		
	F.2	Reduce THERMAL POWER to < P-6.	2 hours
G. One Source Range Neutron Flux channel inoperable.	G.1	---------------NOTE--------------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. -------------------------------------	
		Suspend operations involving positive reactivity additions.	Immediately
H. Two Source Range Neutron Flux channels inoperable.	H.1	Open reactor trip breakers (RTBs).	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
I. One Source Range Neutron Flux channel inoperable.	I.1	Restore channel to OPERABLE status.	48 hours
J. One train inoperable.	J.1	---------------NOTE-------------- One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. ------------------------------------- Restore train to OPERABLE status.	 6 hours
K. One RTB train inoperable.	K.1	---------------NOTE-------------- One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. ------------------------------------- Restore train to OPERABLE status.	 24 hours
L. One or more channels inoperable.	L.1	Verify interlock is in required state for existing unit conditions.	1 hour
M. One trip mechanism inoperable for one RTB.	M.1	Restore inoperable trip mechanism to OPERABLE status.	48 hours
N. Required Action and associated Completion Time of Condition D not met for Function 8.a, 9, 10, 11, 12, or 13.	N.1	Reduce THERMAL POWER to < P-7.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
O. Required Action and associated Completion Time of Condition D not met for Function 16.a or 16.b.	O.1	Reduce THERMAL POWER to < P-8.	6 hours
P. Required Action and associated Completion Time of Condition L not met for Function 18.b, 18.c, or 18.e.	P.1	Be in MODE 2.	6 hours
Q. Required Action and associated Completion Time of Condition B, J, K, or M not met in MODE 1 or 2. <u>OR</u> Required Action and associated Completion Time of Condition C not met. <u>OR</u> Required Action and associated Completion Time of Condition D not met for Function 2.b, 3, 6, 7, 8.b, 14, or 15. <u>OR</u> Required Action and associated Completion Time of Condition L not met for Function 18.a or 18.d.	Q.1	Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
R. Required Action and associated Completion Time of Condition B not met in MODE 3, 4, or 5. OR Required Action and associated Completion Time of Condition L not met in MODE 3, 4, or 5 for Function 18.a. OR Required Action and associated Completion Time of Condition I not met.	R.1	Initiate action to fully insert all rods.	Immediately
	AND		
	R.2	Place the Rod Control System in a condition incapable of rod withdrawal.	1 hour

SURVEILLANCE REQUIREMENTS

---NOTE---

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2	-----NOTES----- 1. Adjust NIS channel if absolute difference is > 2%. 2. Not required to be performed until 12 hours after THERMAL POWER is ≥ 15% RTP. ----- Compare results of calorimetric heat balance calculation to Nuclear Instrumentation System (NIS) channel output.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3	-----NOTES----- 1. Adjust NIS channel if absolute difference is ≥ 3%. 2. Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. ----- Compare results of the incore detector measurements to NIS AFD.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.4	-----NOTE----- This Surveillance must be performed on the reactor trip bypass breaker prior to placing the bypass breaker in service. ----- Perform TADOT.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.6	Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.7	-----------------------------NOTE------------------------------ Not required to be performed until 24 hours after THERMAL POWER is ≥ 50% RTP. --- Calibrate excore channels to agree with incore detector measurements.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.8	-----------------------------NOTE------------------------------ For Function 2.b, not required to be performed until 12 hours after THERMAL POWER is below the P-10 interlock. --- Perform COT.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.9	------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.10	------------------------------NOTE------------------------------ Verification of relay setpoints not required. -- Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.11	-----------------------------NOTES----------------------------- 1. For Function 4, not required to be performed until 12 hours after THERMAL POWER is below the P-10 interlock. 2. For Function 5, not required to be performed until 4 hours after THERMAL POWER is below the P-6 interlock. -- Perform COT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.12	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.13	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.14	------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.15	----------------------------NOTE------------------------------- Normalization of the ΔT is not required to be performed until 72 hours after THERMAL POWER is ≥ 98% RTP. -- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.16	Perform COT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.17	Perform TADOT.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.18	------------------------------NOTE------------------------------ Verification of setpoint is not required. --- Perform TADOT.	Prior to exceeding the P-8 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days
SR 3.3.1.19	------------------------------NOTE------------------------------ Neutron detectors are excluded from response time testing. --- Verify RTS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

Table 3.3.1-1 (page 1 of 6)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Manual Reactor Trip	1,2	2	B	SR 3.3.1.17	NA
	3[(a)], 4[(a)], 5[(a)]	2	B	SR 3.3.1.17	NA
2. Power Range Neutron Flux					
a. High	1,2	4	C	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.8 SR 3.3.1.9 SR 3.3.1.19	≤ 110% RTP
b. Low	1[(b)],2	4	D	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.9 SR 3.3.1.19	≤ 26% RTP
3. Power Range Neutron Flux - High Positive Rate	1,2	4	D	SR 3.3.1.8 SR 3.3.1.14	≤ 5.5% RTP with time constant ≥ 2 sec
4. Intermediate Range Neutron Flux	1[(b)], 2[(c)]	2	E, F	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.14	≤ 30% RTP
5. Source Range Neutron Flux	2[(d)]	2	G, H	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.14	≤ 1.3E5 cps
	3[(a)], 4[(a)], 5[(a)]	2	H, I	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.14	≤ 1.3E5 cps

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(b) Below the P-10 (Power Range Neutron Flux) interlock.

(c) Above the P-6 (Intermediate Range Neutron Flux) interlock.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

Table 3.3.1-1 (page 2 of 6)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Overtemperature ΔT	1,2	4	D	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.15 SR 3.3.1.19	Refer to Note 1
7. Overpower ΔT	1,2	4	D	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.15 SR 3.3.1.19	Refer to Note 2
8. Pressurizer Pressure					
a. Low	1[(e)]	4	D	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13 SR 3.3.1.19	≥ 1868 psig
b. High	1,2	4	D	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13 SR 3.3.1.19	≤ 2398 psig
9. Pressurizer Water Level - High	1[(e)]	3	D	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13 SR 3.3.1.19	≤ 93.4%
10. Reactor Coolant Flow - Low (per loop)	1[(e)]	3	D	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13 SR 3.3.1.19	≥ 89.6%
11. Reactor Coolant Pump (RCP) Breaker Position	1[(e)]	1 per RCP	D	SR 3.3.1.17	NA
12. Undervoltage RCPs	1[(e)]	1 per bus	D	SR 3.3.1.10 SR 3.3.1.12 SR 3.3.1.19	≥ 2725 V
13. Underfrequency RCPs	1[(e)]	1 per bus	D	SR 3.3.1.10 SR 3.3.1.13 SR 3.3.1.19	≥ 57.01 Hz
14. Steam Generator (SG) Water Level - Low Low (per SG)	1,2	3	D	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13 SR 3.3.1.19	≥ 4.0%

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

Table 3.3.1-1 (page 3 of 6)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
15. SG Water Level – Low (per SG)	1,2	2	D(f)	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13	≥ 9.7%
Coincident with Steam Flow/Feedwater Flow Mismatch (per SG)	1,2	2	D(f)	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13	≤ 0.73E6 lb/hr steam flow at RTP
16. Turbine Trip					
a. Low Fluid Oil Pressure	1(h)	3	D	SR 3.3.1.13 SR 3.3.1.18	≥ 750 psig
b. Turbine Stop Valve Closure (per train)	1(h)	4	D	SR 3.3.1.13 SR 3.3.1.18	≥ 1% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	J	SR 3.3.1.6 SR 3.3.1.19	NA
18. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	2(d), 3(a), 4(a), 5(a)	2	L	SR 3.3.1.14 SR 3.3.1.16	≥ 6E-11 amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	L	SR 3.3.1.5	NA
c. Power Range Neutron Flux, P-8	1	4	L	SR 3.3.1.14 SR 3.3.1.16	≤ 31% RTP
d. Power Range Neutron Flux, P-10	1,2	4	L	SR 3.3.1.14 SR 3.3.1.16	≥ 9% RTP and ≤ 11% RTP
e. Turbine First Stage Pressure, P-13	1	2	L	SR 3.3.1.1 SR 3.3.1.13 SR 3.3.1.16	≤ 37 psig

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

(f) Separate condition entry is allowed per SG for only 1 of the 4 total Reactor Trip System Instrumentation Function 15 channels inoperable on each SG (i.e., for only 1 of 2 SG Water Level – Low channels or 1 of 2 Steam Flow/Feedwater Flow Mismatch channels inoperable on each SG). Any combination of 2 or more inoperable Reactor Trip System Instrumentation Function 15 channels on any SG requires immediate entry into LCO 3.0.3.

(h) Above the P-8 (Power Range Neutron Flux) Interlock.

Table 3.3.1-1 (page 4 of 6)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
19. Reactor Trip Breakers[g] (RTBs)	1,2	2 trains	K	SR 3.3.1.4	NA
	3[a], 4[a], 5[a]	2 trains	B	SR 3.3.1.4	NA
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	M	SR 3.3.1.4	NA
	3[a], 4[a], 5[a]	1 each per RTB	B	SR 3.3.1.4	NA
21. Automatic Trip Logic	1,2	2 trains	J	SR 3.3.1.5	NA
	3[a], 4[a], 5[a]	2 trains	B	SR 3.3.1.5	NA

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(g) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

Table 3.3.1-1 (page 5 of 6)
Reactor Trip System Instrumentation

Note 1: Overtemperature ΔT

The Overtemperature ΔT Function Allowable Value shall not exceed the following nominal Trip Setpoint by more than 0.008% of ΔT span.

$$\Delta T \leq \Delta T_O \left\{ K_1 - K_2 \frac{(1+\tau_1 S)}{(1+\tau_2 S)} \left[T - T' \right] + K_3 (P - P') - f_1 (\Delta I) \right\}$$

Where: ΔT is measured RCS ΔT,°F.
ΔT_O is the indicated ΔT at RTP,°F.
S is the Laplace transform operator, sec^{-1}.
T is the measured RCS average temperature,°F.
T´ is the nominal T_{avg} at RTP, ≤ [*]°F.

P is the measured pressurizer pressure, psig
P´ is the nominal RCS operating pressure, ≥ [*] psig

K_1 ≤ [*] K_2 ≥ [*]/°F K_3 ≥ [*]/psig
τ_1 ≥ [*] sec τ_2 ≤ [*] sec

$f_1(\Delta I)$ =	[*] {[*] + (q_t - q_b)}	when q_t - q_b ≤ -[*]% RTP
	0% of RTP	when -[*]% RTP < q_t - q_b ≤ [*]% RTP
	-[*] {(q_t - q_b) - [*]}	when q_t - q_b > [*]% RTP

Where q_t and q_b are percent RTP in the upper and lower halves of the core, respectively, and q_t + q_b is the total THERMAL POWER in percent RTP.

*These values denoted with [*] are specified in the COLR.

Table 3.3.1-1 (page 6 of 6)
Reactor Trip System Instrumentation

Note 2: Overpower ΔT

The Overpower ΔT Function Allowable Value shall not exceed the following nominal Trip Setpoint by more than 0.037% of ΔT span.

$$\Delta T \leq \Delta T_O \left\{ K_4 - K_5 \frac{\tau_3 S}{1+\tau_3 S} T - K_6 \left[T - T'' \right] - f_2(\Delta I) \right\}$$

Where: ΔT is measured RCS ΔT,°F.
ΔT_O is the indicated ΔT at RTP,°F.
S is the Laplace transform operator, sec^{-1}.
T is the measured RCS average temperature,°F.
T″ is the nominal T_{avg} at RTP, ≤ [*]°F.

K_4 ≤ [*]

K_5 ≥ [*]/°F for increasing T_{avg}
[*]/°F for decreasing T_{avg}

K_6 ≥ [*]/°F when T > T″
[*]/°F when T ≤ T″

τ_3 ≥ [*] sec

$f_2(\Delta I)$ = [*]

*These values denoted with [*] are specified in the COLR.

3.3 INSTRUMENTATION

3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.2 The ESFAS instrumentation for each Function in Table 3.3.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2-1.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1	Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
B. One required channel or train inoperable.	B.1	Restore required channel or train to OPERABLE status.	48 hours
C. One train inoperable.	C.1	------------NOTE------------ One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ---------------------------- Restore train to OPERABLE status.	 6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One channel inoperable.	D.1	-------------NOTES------------ 1. For Functions with installed bypass test capability, one channel may be bypassed for up to 4 hours for surveillance testing. 2. For Functions with no installed bypass test capability, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ------------------------------------- Place channel in trip.	6 hours
E. One channel inoperable.	E.1	--------------NOTE-------------- One additional channel may be bypassed for up to 4 hours for surveillance testing. ------------------------------------- Place channel in bypass.	6 hours
F. One channel per bus inoperable.	F.1	Place channel in trip.	1 hour
G. One or more channels inoperable.	G.1	Verify interlock is in required state for existing unit condition.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. One or more Main Feedwater Pump trip channel(s) inoperable.	------------------NOTE------------------ Two channels on one Main Feedwater pump may be inoperable for up to 4 hours during the process of removing the pump from service or placing the pump in service H.1 Restore channel(s) to OPERABLE status.	 48 hours
I. Required Action and associated Completion Time of Condition H not met for Function 6.g. <u>OR</u> Required Action and associated Completion Time of Condition D not met for Function 6.f.	I.1 Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. Required Action and associated Completion Time of Condition B not met for Function 8.a. OR Required Action and associated Completion Time of Condition C not met for Function 4.b, 5.a, 6.a, 6.b, or 7.b. OR Required Action and associated Completion Time of Condition D not met for Function 1.c, 1.d, 1.e.(1), 1.e.(2), 4.d, 4.e, 5.b, 6.c, 7.c, or 8.c. OR Required Action and associated Completion Time of Condition E not met for Function 2.c, 3.b.(3), or 4.c. OR Required Action and associated Completion Time of Condition F not met for Function 6.e. OR Required Action and associated Completion Time of Condition G not met for Function 8.b.	J.1 Be in MODE 3. AND J.2 Be in MODE 4.	6 hours 12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. Required Action and associated Completion Time of Condition B not met for Function 1.a, 2.a, 3.a.(1), 3.b.(1), or 7.a. OR Required Action and associated Completion Time of Condition C not met for Function 1.b, 2.b, 3.a.(2), or 3.b.(2).	K.1 Be in MODE 3. AND K.2 Be in MODE 5.	6 hours 36 hours
L. Required Action and associated Completion Time of Condition B not met for Function 4.a.	L.1 Declare associated steam generator stop valve (SGSV) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---

Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.2	------------------------------NOTE------------------------------ Verification of relay setpoints not required. -- Perform TADOT.	 In accordance with the Surveillance Frequency Control Program
SR 3.3.2.3	Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.4	Perform MASTER RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.5	------------------------------NOTE------------------------------ Verification of relay setpoints not required. -- Perform TADOT.	 In accordance with the Surveillance Frequency Control Program
SR 3.3.2.6	------------------------------NOTE------------------------------ For Functions 1.c, 2.c, 3.b.(3), 4.c, and 7.c, the associated transmitters shall be exercised during the performance of SR 3.3.2.6. -- Perform COT.	 In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.7	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.8	Perform SLAVE RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.9	Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.10	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.11	Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.12	-------------------------------NOTE------------------------------- Not required to be performed for the turbine driven AFW pump until 24 hours after ≥ 850 psig in the steam generator. --- Verify ESF RESPONSE TIMES are within limit.	In accordance with the Surveillance Frequency Control Program

Table 3.3.2-1 (page 1 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Safety Injection (SI)					
a. Manual Initiation	1,2,3,4	1 per train	B	SR 3.3.2.9	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
c. Containment Pressure - High	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 1.17 psig
d. Pressurizer Pressure - Low	1,2,3[(a)]	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 1765 psig
e. Steam Line Pressure					
(1) Low	1,2,3[(b)]	1 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 481.3[(c)] psig
(2) High Differential Pressure Between Steam Lines (per steam line)	1,2,3[(b)]	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≤ 112 psig
2. Containment Spray					
a. Manual Initiation	1,2,3,4	1 per train	B	SR 3.3.2.9	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
c. Containment Pressure - High High	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 2.97 psig

(a) Above the P-11 (Pressurizer Pressure) interlock.

(b) Above the P-12 (T_{avg} - Low Low) interlock.

(c) Time constants used in the lead/lag controller are $t_1 \geq 50$ seconds and $t_2 \leq 5$ seconds.

Table 3.3.2-1 (page 2 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Containment Isolation					
a. Phase A Isolation					
(1) Manual Initiation	1,2,3,4	1 per train	B	SR 3.3.2.9	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
(3) SI Input from ESFAS	1,2,3,4	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.			
b. Phase B Isolation					
(1) Manual Initiation	1,2,3,4	1 per train	B	SR 3.3.2.9	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
(3) Containment Pressure – High High	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≤ 2.97 psig
4. Steam Line Isolation					
a. Manual Initiation (per steam line)	1,2(d),3(d)	2	B	SR 3.3.2.9	NA
b. Automatic Actuation Logic and Actuation Relays	1,2(d),3(d)	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
c. Containment Pressure - High High	1,2(d),3(d)	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 2.97 psig
d. Steam Line Pressure - Low	1,2(d),3(b)(d)	1 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 481.3(c) psig

(b) Above the P-12 (T_{avg} - Low Low) interlock.

(c) Time constants used in the lead/lag controller are $t_1 \geq 50$ seconds and $t_2 \leq 5$ seconds.

(d) Except when all SGSVs are closed.

Table 3.3.2-1 (page 3 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Steam Line Isolation					
e. High Steam Flow in Two Steam Lines (per steam line)	$1,2^{(d)},3^{(b)(d)}$	2	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	(e)
Coincident with T_{avg} - Low Low	$1,2^{(d)},3^{(b)(d)}$	1 per loop	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≥ 538.8°F
5. Turbine Trip and Feedwater Isolation					
a. Automatic Actuation Logic and Actuation Relays	$1,2^{(f)},3^{(f)}$	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
b. SG Water Level - High High (per SG)	$1,2^{(f)},3^{(f)}$	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 68.0%
c. SI Input from ESFAS	$1,2^{(f)},3^{(f)}$	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.			
6. Auxiliary Feedwater					
a. Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
b. Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)	1,2,3	2 trains	C	SR 3.3.2.11	NA

(b) Above the P-12 (T_{avg} - Low Low) interlock.

(d) Except when all SGSVs are closed.

(e) Less than or equal to a function defined as ΔP corresponding to 1.56E6 lb/hr below 20% load, ΔP increasing linearly from 1.56E6 lb/hr at 20% load to 3.93E6 lb/hr at 100% load.

(f) Except when all main feedwater isolation valves or main feedwater regulating valves are closed and de-activated or isolated by a closed manual valve.

Table 3.3.2-1 (page 4 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Auxiliary Feedwater					
c. SG Water Level - Low Low (per SG)	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 4.0%
d. SI Input from ESFAS	1,2,3	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.			
e. Loss of Voltage (per bus)	1,2,3	3	F	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.7 SR 3.3.2.12	≥ 3238.9 V and ≤ 3332.6 V with ≥ 1.8 sec and ≤ 2.2 sec time delay
f. Undervoltage Reactor Coolant Pump	1,2	1 per bus	D	SR 3.3.2.5 SR 3.3.2.7 SR 3.3.2.12	≥ 2725 V
g. Trip of all Main Feedwater Pumps (per pump)	1,2[(g)]	2	H	SR 3.3.2.9 SR 3.3.2.12	NA
7. Containment Air Recirculation/Hydrogen Skimmer (CEQ) System					
a. Manual Initiation	1,2,3,4	1 per train	B	SR 3.3.2.9	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA
c. Containment Pressure – High	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 1.17 psig
8. ESFAS Interlocks					
a. Reactor Trip, P-4	1,2,3	1 per train	B	SR 3.3.2.9	NA
b. Pressurizer Pressure, P-11	1,2,3	3	G	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≤ 1915 psig
c. T_{avg} - Low Low, P-12	1,2,3[(b)]	1 per loop	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10	≥ 538.8°F

(b) Above the P-12 (T_{avg} - Low Low) interlock.

(g) When one or more Main Feedwater pump(s) are supplying feedwater to steam generators.

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3 The PAM instrumentation for each Function in Table 3.3.3-1 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. ----------NOTE---------- Not applicable to Functions 14 and 23. ------------------------ One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.6.	Immediately
C. ----------NOTE---------- Only applicable to Functions 14 and 23. ------------------------ One or more Functions with one required channel inoperable.	C.1 Restore required channel to OPERABLE status.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more Functions with two or more required channels inoperable.	D.1	Restore all but one channel to OPERABLE status.	7 days
E. Required Action and associated Completion Time of Condition C or D not met.	E.1	Enter the Condition referenced in Table 3.3.3-1 for the channel.	Immediately
F. As required by Required Action E.1 and referenced in Table 3.3.3-1.	F.1	Be in MODE 3.	6 hours
	AND		
	F.2	Be in MODE 4.	12 hours
G. As required by Required Action E.1 and referenced in Table 3.3.3-1.	G.1	Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---

These SRs apply to each PAM instrumentation Function in Table 3.3.3-1, except where identified in the SR.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.2	Deleted.	
SR 3.3.3.3	-------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.3-1 (page 1 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION E.1
1.	Neutron Flux	2	F
2.	Steam Generator Pressure (per steam generator)	2	F
3.	Reactor Coolant System (RCS) Hot Leg Temperature (Wide Range)	2	F
4.	RCS Cold Leg Temperature (Wide Range)	2	F
5.	RCS Pressure (Wide Range)	2	F
6.	Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication)	2	G
7.	Containment Water Level	2[a]	F
8.	Containment Pressure (Narrow Range)	2	F
9.	Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path[b][c]	F
10.	Containment Area Radiation (High Range)	2	G
11.	Deleted		
12.	Pressurizer Level	2	F
13.	Steam Generator Water Level (Wide Range)	4	F
14.	Condensate Storage Tank Level	1	G
15.	Core Exit Temperature - Quadrant 1	2[d]	F
16.	Core Exit Temperature - Quadrant 2	2[d]	F
17.	Core Exit Temperature - Quadrant 3	2[d]	F
18.	Core Exit Temperature - Quadrant 4	2[d]	F

(a) Up to one channel of Function 7 OPERABILITY requirements can be satisfied by an OPERABLE train of containment water level switches if both Containment Water Level channels are inoperable. This substitution is only allowed until the end of the current operating cycle when it is invoked.

(b) 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.

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

(d) A channel consists of one core exit thermocouple (CET).

Table 3.3.3-1 (page 2 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION E.1
19.	Secondary Heat Sink Indication (per steam generator)	2[(e)]	F
20.	Emergency Core Cooling System Flow (per train)	2[(f)]	F
21.	Containment Pressure (Wide Range)	2	F
22.	Refueling Water Storage Tank Level	2	F
23.	RCS Subcooling Margin Monitor	1[(g)]	F
24.	Component Cooling Water Pump Circuit Breaker Status	2	G
25.	Containment Recirculation Sump Water Level	2	F

(e) Any combination of two instruments per steam generator, including Steam Generator Water Level (Narrow Range) and Auxiliary Feedwater Flow, can be used to satisfy Function 19 OPERABILITY requirements.

(f) Any combination of two instruments per train, including Centrifugal Charging Pump Flow, Safety Injection Pump Flow, Centrifugal Charging Pump Circuit Breaker Status, and Safety Injection Pump Circuit Breaker Status, can be used to satisfy Function 20 OPERABILITY requirements.

(g) An OPERABLE plant process computer (PPC) subcooling margin readout can be used as a substitute for an inoperable Function 23, RCS Subcooling Margin Monitor.

3.3 INSTRUMENTATION

3.3.4 Remote Shutdown Monitoring Instrumentation

LCO 3.3.4 The remote shutdown monitoring instrumentation Functions 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 required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	6 hours 12 hours

<u>SURVEILLANCE REQUIREMENTS</u>

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2	Perform CHANNEL CALIBRATION for each required instrumentation channel.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.5 Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation

LCO 3.3.5 Three channels per bus of the Loss of Voltage Function and three channels per train of the Degraded Voltage Function shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources – Shutdown," for the Loss of Voltage Function only.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel per bus or train inoperable.	A.1 Place channel in trip.	1 hour
B. One or more Functions with two or more channels per bus or train inoperable.	B.1 Restore all but one channel per bus or train to OPERABLE status.	1 hour
C. Required Action and associated Completion Time not met.	C.1 Enter applicable Condition(s) and Required Action(s) for the associated DG made inoperable by LOP DG start instrumentation.	Immediately

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	------------------------------NOTE------------------------------ Verification of relay setpoints not required. --- Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3	Perform CHANNEL CALIBRATION with Allowable Values as follows: a. Loss of Voltage Function Allowable Value ≥ 3238.9 V and ≤ 3332.6 V with a time delay of 2.0 ± 0.2 seconds. b. Degraded Voltage Function Allowable Value ≥ 3930.9 V and ≤ 3983.6 V with a time delay of 9 ± 0.25 seconds when a Steam Generator Water Level - Low Low signal or Safety Injection signal is present.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.6 Containment Purge Supply and Exhaust System Isolation Instrumentation

LCO 3.3.6 The Containment Purge Supply and Exhaust System Isolation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

-----NOTES-----

1. Separate Condition entry is allowed for each Function.

2. The containment pressure relief penetration flow path may be unisolated intermittently under administrative controls to maintain containment pressure within the required limits of LCO 3.6.4, "Containment Pressure."

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One radiation monitoring channel inoperable in MODE 1, 2, 3, or 4 when any Containment Purge Supply and Exhaust System penetration flow path is open.	A.1 -----NOTE----- LCO 3.0.4.c is applicable. ---------- Restore channel to OPERABLE status.	Prior to entering MODE 4 from MODE 5 following refueling
B. One required radiation monitoring channel inoperable during movement of irradiated fuel assemblies within containment.	B.1 Restore required channel to OPERABLE status.	4 hours
C. One or more required manual initiation channels inoperable.	C.1 Restore required channel(s) to OPERABLE status.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more Automatic Actuation Logic and Actuation Relays or SI Input from ESFAS trains inoperable. <u>OR</u> Two or more required radiation monitoring channels inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Isolate the affected Containment Purge Supply and Exhaust System penetration flow paths by use of at least one closed automatic valve.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---

Refer to Table 3.3.6-1 to determine which SRs apply for each Containment Purge Supply and Exhaust System Isolation Instrumentation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2	Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.3	Perform MASTER RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4	Perform COT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.5	Perform SLAVE RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.6	------------------------------NOTE------------------------------ Verification of setpoint not required. -- Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.7	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.6-1 (page 1 of 1)
Containment Purge Supply and Exhaust System Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Manual Initiation	1,2,3,4, (a)	1 per train	SR 3.3.6.6	NA
2. Automatic Actuation Logic and Actuation Relays	1,2,3,4, (a)	2 trains	SR 3.3.6.2 SR 3.3.6.3 SR 3.3.6.5	NA
3. Containment Radiation (per train)	1[c], 2[c], 3[c], 4[c], (a)	3[b]	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7	
a. Gaseous				≤ 4.4E-3 μCi/cc
b. Particulate				≤ 2.52 μCi
c. Area Radiation				≤ 54 mR/hr
4. Safety Injection (SI) Input from Engineered Safety Features Actuation System (ESFAS)	1,2,3,4	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.		

(a) During movement of irradiated fuel assemblies within containment.

(b) Only 2 of the 3 Containment Radiation Function channels (Gaseous, Particulate, and Area Radiation) per train are required to be OPERABLE during movement of irradiated fuel assemblies within containment.

(c) When any Containment Purge Supply and Exhaust System penetration flow path is open.

3.3 INSTRUMENTATION

3.3.7 Control Room Emergency Ventilation (CREV) System Actuation Instrumentation

LCO 3.3.7 The CREV System actuation instrumentation for each Function in Table 3.3.7-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.7-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions with one train inoperable.	A.1 Place associated CREV train in pressurization/ cleanup mode.	7 days
B. One or more required Functions with two trains inoperable.	B.1.1 Place one CREV train in pressurization/cleanup mode. AND B.1.2 Enter applicable Conditions and Required Actions for one CREV train made inoperable by inoperable CREV actuation instrumentation. OR B.2 Place both CREV trains in pressurization/cleanup mode.	Immediately Immediately Immediately

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

---NOTE---

Refer to Table 3.3.7-1 to determine which SRs apply for each CREV System Actuation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.2	Perform MASTER RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.3	Perform SLAVE RELAY TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.7-1 (page 1 of 1)
CREV System Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Automatic Actuation Logic and Actuation Relays	1, 2, 3, 4	2 trains	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.3	NA
2. Safety Injection (SI) Input from Engineered Safety Features Actuation System (ESFAS)	1, 2, 3, 4	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.		
3. Unit 2 Automatic Actuation Logic and Actuation Relays	(a)	2 trains	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.3	NA
4. Unit 2 SI Input from ESFAS	(a)	Refer to Unit 2 LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.		

(a) When Unit 2 is in MODE 1, 2, 3, or 4 and Unit 1 is in MODE 1, 2, 3, or 4.

3.3 INSTRUMENTATION

3.3.8 Boron Dilution Monitoring Instrumentation (BDMI)

LCO 3.3.8 Two source range neutron flux monitoring channels shall be OPERABLE.

APPLICABILITY: MODES 3, 4, and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One source range neutron flux monitoring channel inoperable.	A.1 Restore channel to OPERABLE status.	7 days
B. Two source range neutron flux monitoring channels inoperable. OR Required Action and associated Completion Time of Condition A not met.	B.1 ------------NOTES------------ 1. Unit temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. 2. Addition of water from the refueling water storage tank (RWST) is allowed provided RWST boron concentration is ≥ 2400 ppm. -------------------------------- Suspend operations involving positive reactivity additions. AND	 Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.1 Restore one channel to OPERABLE status. OR B.2.2.1 --------------NOTE-------------- The RWST is considered to be an unborated water source in MODE 5 if the RWST boron concentration is < 2400 ppm and less than the Reactor Coolant System (RCS) boron concentration. ------------------------------------- Close unborated water source isolation valves. AND B.2.2.2 Perform SR 3.1.1.1.	1 hour 1 hour 1 hour AND Once per 12 hours thereafter

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.2	-------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- 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 for pressurizer pressure, RCS average temperature, and RCS total flow rate shall be within the limits specified below:

a. Pressurizer pressure is greater than or equal to the limit specified in the COLR;

b. RCS average temperature is less than or equal to the limit specified in the COLR; and

c. RCS total flow rate is greater than or equal to the limit specified in the COLR. The minimum RCS total flow rate shall be ≥ 354,000 gpm.

APPLICABILITY: MODE 1.

---NOTE---
Pressurizer pressure limit does not apply during:

a. THERMAL POWER ramp > 5% RTP per minute; or

b. THERMAL POWER step > 10% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. 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	Verify pressurizer pressure is greater than or equal to the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.2	Verify RCS average temperature is less than or equal to the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.3	Verify RCS total flow rate is ≥ 354,000 gpm and greater than or equal to the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.4	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after ≥ 90% RTP. --- Verify by precision heat balance that RCS total flow rate is ≥ 354,000 gpm and greater than or equal to the limit specified in the COLR.	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 Each RCS loop average temperature (T_{avg}) shall be ≥ 541°F.

APPLICABILITY: MODE 1,
MODE 2 with k_{eff} ≥ 1.0.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	Verify RCS T_{avg} in each loop ≥ 541°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 the limits specified in Figures 3.4.3-1 and 3.4.3-2 with:

a. A maximum heatup of 60°F in any one hour period;

b. A maximum cooldown of 100°F in any one hour period; and

c. A maximum temperature change of ≤ 5°F in any one hour period, during hydrostatic testing operations above system design pressure.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. -----------NOTE----------- Required Action A.2 shall be completed whenever this Condition is entered. ------------------------------- Requirements of LCO not met in MODE 1, 2, 3, or 4.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5 with RCS pressure < 500 psig.	6 hours 36 hours

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	------------------------------NOTE----------------------------- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. --	
	Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates are within limits.	In accordance with the Surveillance Frequency Control Program

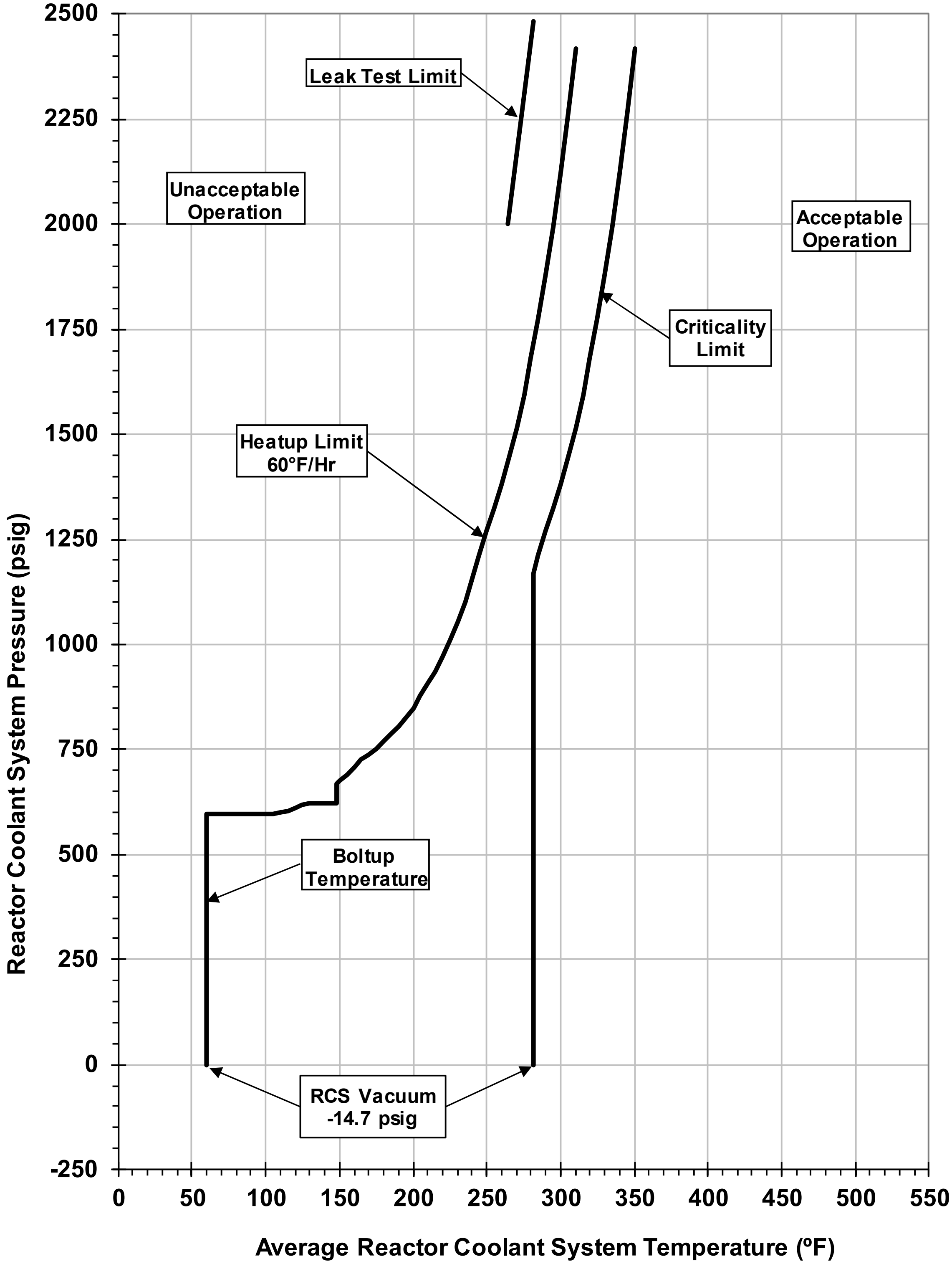


Figure 3.4.3-1 (page 1 of 1)
Reactor Coolant System Pressure versus Temperature Limits -
Heatup Limit, Criticality Limit, and Leak Test Limit
(Applicable for service period up to 48 EFPY and during vacuum fill)

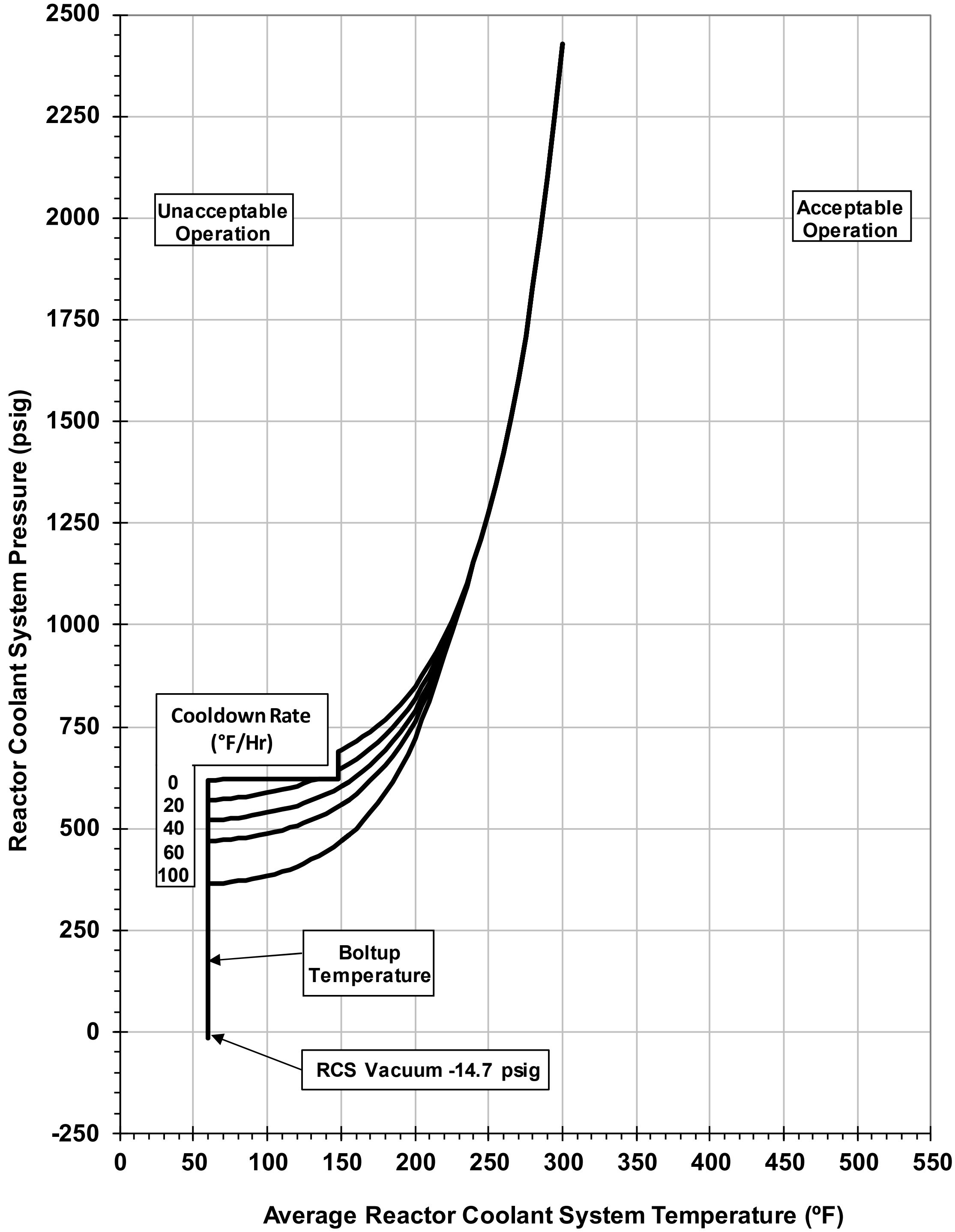


Figure 3.4.3-2 (page 1 of 1)
Reactor Coolant System Pressure versus Temperature Limits - Various Cooldown Rates Limits
(Applicable for service period up to 48 EFPY and during vacuum fill)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops - MODES 1 and 2

LCO 3.4.4 Four RCS loops shall be OPERABLE and in operation.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify each RCS loop is in operation.	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 either:

a. Two RCS loops shall be in operation when the Rod Control System is capable of rod withdrawal; or

b. One RCS loop shall be in operation when the Rod Control System is not capable of rod withdrawal.

-----NOTE-----
All reactor coolant pumps may be removed from operation for ≤ 1 hour per 8 hour period provided:

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

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

c. The Rod Control System is not capable of rod withdrawal.

APPLICABILITY: MODE 3.

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One required RCS loop not in operation with Rod Control System capable of rod withdrawal.	C.1	Place the Rod Control System in a condition incapable of rod withdrawal.	2 hours
D. Two required RCS loops inoperable. <u>OR</u> No required RCS loop in operation.	D.1	Place the Rod Control System in a condition incapable of rod withdrawal.	Immediately
	<u>AND</u>		
	D.2	Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the requirements of LCO 3.1.1.	Immediately
	<u>AND</u>		
	D.3	Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify required RCS loops are in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.5.2	Verify steam generator (SG) secondary side water levels are above the lower tap of the SG wide range level instrumentation by $\geq$ 420 inches for required RCS loops.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.5.3	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after a required pump is not in operation. --- Verify correct breaker alignment and indicated power are 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 residual heat removal (RHR) loops shall be OPERABLE, and one loop shall be in operation.

---NOTES---

1. All reactor coolant pumps (RCPs) and RHR pumps may be removed from operation for ≤ 1 hour per 8 hour period provided:

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

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

2. Reactor coolant pumps shall not be started with one or more RCS cold leg temperatures ≤ 297°F unless the secondary water temperature of each steam generator is < 50°F above each of the RCS cold leg temperatures.

APPLICABILITY: MODE 4.

ACTIONS

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required RHR or RCS loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.6.2	Verify SG secondary side water levels are above the lower tap of the SG wide range level instrumentation by ≥ 420 inches for required RCS loops.	In accordance with the Surveillance Frequency Control Program
SR 3.4.6.3	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after a required pump is not in operation. --- Verify correct breaker alignment and indicated power are available to each required pump.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.6.4	------------------------------NOTE------------------------------ Not required to be performed until 12 hours after entering Mode 4. -- Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	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 residual heat removal (RHR) loop shall be OPERABLE and in operation, and either:

a. One additional RHR loop shall be OPERABLE; or

b. The secondary side water level of at least two steam generators (SGs) shall be above the lower tap of the SG wide range level instrumentation by ≥ 420 inches.

---NOTES---

1. The RHR pump of the loop in operation may be removed from operation for ≤ 1 hour per 8 hour period provided:

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

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

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

3. Reactor coolant pumps shall not be started with one or more RCS cold leg temperatures ≤ 297°F unless the secondary water temperature of each steam generator is < 50°F above each of the RCS cold leg temperatures.

4. All RHR 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 RHR loop inoperable. AND One RHR loop OPERABLE.	A.1 Initiate action to restore a second RHR 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 RHR loop OPERABLE.	B.1 Initiate action to restore a second RHR 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 RHR loops OPERABLE. OR Required RHR loop not in operation.	C.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the requirements of LCO 3.1.1. AND C.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify required RHR loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.2	Verify SG secondary side water level is above the lower tap of the SG wide range level instrumentation by ≥ 420 inches in required SGs.	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 are available to each required RHR pump.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.4	Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	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 residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

-----NOTES-----

1. All RHR pumps may be removed from operation for ≤ 30 minutes when switching from one loop to another provided:

   a. The core outlet temperature is maintained at least 10°F below saturation temperature;

   b. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the requirements of LCO 3.1.1, "SHUTDOWN MARGIN (SDM)"; and

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

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

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify required RHR 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 are available to each required RHR pump.	In accordance with the Surveillance Frequency Control Program
SR 3.4.8.3	Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	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 ≤ 92%; and

b. Two trains of pressurizer backup heaters OPERABLE with the capacity of each train ≥ 150 kW.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Be in MODE 3.	6 hours
	AND	
	A.2 Fully insert all rods.	6 hours
	AND	
	A.3 Place Rod Control System in a condition incapable of rod withdrawal.	6 hours
	AND	
	A.4 Be in MODE 4.	12 hours
B. One train of pressurizer backup heaters inoperable.	B.1 Restore train of pressurizer backup heaters to OPERABLE status.	72 hours

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level is ≤ 92%.	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2	Verify capacity of each train of pressurizer backup heaters is ≥ 150 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 Three pressurizer safety valves shall be OPERABLE with lift settings ≥ 2411 psig and ≤ 2559 psig.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures > 297°F.

---NOTE---
The lift settings are not required to be within the LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 54 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes
B. Required Action and associated Completion Time not met. OR Two or more pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 4 with any RCS cold leg temperatures ≤ 297°F.	6 hours 24 hours

SURVEILLANCE REQUIREMENTS

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more PORVs inoperable and capable of being manually cycled.	A.1	Close and maintain power to associated block valve.	1 hour
B. One or more PORVs inoperable and not capable of being manually cycled.	B.1	Close associated block valve.	1 hour
	AND		
	B.2	Remove power from associated block valve.	1 hour
C. One or more block valves inoperable.	C.1	-----NOTE----- Required Action C.1 does not apply when block valves are inoperable solely as a result of complying with Required Action B.2. -----	
		Place associated PORV in manual control.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Two PORVs inoperable and not capable of being manually cycled.	D.1	Restore one PORV to OPERABLE status.	72 hours
E. Two block valves inoperable.	E.1	---NOTE--- Required Action E.1 does not apply when block valves are inoperable solely as a result of complying with Required Action B.2. --- Restore one block valve to OPERABLE status.	72 hours
F. One PORV inoperable and not capable of being manually cycled and one block valve inoperable, for reasons other than to comply with Required Action B.2, in a different line than the inoperable PORV.	F.1	Restore valve(s) such that only valve(s) in one line are inoperable.	72 hours
G. Three block valves inoperable.	G.1	---NOTE--- Required Action G.1 does not apply when block valves are inoperable solely as a result of complying with Required Action B.2. --- Restore one block valve to OPERABLE status.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Required Action and associated Completion Time of Condition A, B, C, D, E, F, or G not met. OR Three PORVs inoperable and not capable of being manually cycled. OR Two PORVs inoperable and not capable of being manually cycled and one block valve inoperable, for reasons other than to comply with Required Action B.2, in a different line than the inoperable PORVs. OR One PORV inoperable and not capable of being manually cycled and two block valves inoperable, for reasons other than to comply with Required Action B.2, in different lines than the inoperable PORV.	H.1 Be in MODE 3. AND H.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	------------------------------NOTE------------------------------ Not required to be performed with block valve closed in accordance with the Required Actions of this LCO. --- Perform a complete cycle of each block valve.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.2	------------------------------NOTE------------------------------ Only required to be performed in MODES 1 and 2. --- Perform a complete cycle of each PORV.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.3	Perform a complete cycle of each solenoid air control valve and check valve on the air accumulators in PORV control systems.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Low Temperature Overpressure Protection (LTOP) System

LCO 3.4.12 An LTOP System shall be OPERABLE with the following:

A. No safety injection (SI) pump capable of injecting into the RCS and:

1. The accumulators isolated, except an accumulator may be unisolated when the accumulator pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in TS 3.4.3;

2. One of the following pressure relief capabilities:

   a. The residual heat removal (RHR) suction relief valve with a setpoint ≤ 450 psig and RCS cold leg temperature ≤ 150°F;

   b. The residual heat removal (RHR) suction relief valve with a setpoint ≤ 450 psig and at least one RCP running;

   c. Two PORVs with lift settings ≤ 435 psig and the residual heat removal (RHR) suction relief valve with a setpoint ≤ 450 psig;

   d. Two PORVs with lift settings ≤ 435 psig and RCS cold leg temperature ≥ 210°F; or

   e. The RCS depressurized and an RCS vent of ≥ 2.0 square inches or any single PORV blocked open.

--NOTE--
Reactor coolant pumps shall not be started with one or more RCS cold leg temperatures ≤ 297°F unless the secondary water temperature of each steam generator is < 50°F above each of the RCS cold leg temperatures.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is ≤ 297°F,
MODE 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SI pumps capable of injecting into the RCS.	A.1 Initiate action to verify all SI pumps are not capable of injecting into the RCS.	Immediately
B. An accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for the existing cold leg temperature allowed by TS 3.4.3.	B.1 Isolate affected accumulator.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	C.1 Increase RCS cold leg temperature to > 297°F. <u>OR</u> C.2 Depressurize affected accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in TS 3.4.3.	12 hours 12 hours
D. One required RCS relief valve inoperable in MODE 4 while complying with LCO A.2.c or A.2.d.	D.1 Restore required RCS relief valve to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One required RCS relief valve inoperable in MODE 5 or 6 while complying with LCO A.2.c or A.2.d.	E.1 Restore required RCS relief valve to OPERABLE status.	24 hours
F. Required RCP not running.	F.1 Do not start a RCP. <u>AND</u> F.2 Enter Condition G.	Immediately
G. Two or more required RCS relief valves inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A, C, D, E, or F not met. <u>OR</u> LTOP System inoperable for any reason other than Condition A, B, C, D, E, or F.	G.1 Depressurize RCS and establish RCS vent of ≥ 2.0 square inches or block open a single PORV.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify no SI pumps are capable of injecting into the RCS.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.2	Verify the required RCP is running.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.3	-------------------------------NOTE------------------------------ Valve position may be verified by use of administrative means. -- Verify each accumulator that is required to be isolated is isolated.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.4	Verify RHR suction isolation valves are open for the required RHR suction relief valve.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.5	Verify required RCS vent ≥ 2.0 square inches open or a single PORV blocked open.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.6	Verify PORV block valve is open for each required PORV.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.12.7	Verify pressure in each required emergency air tank bank is ≥ 900 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.8	-------------------------------NOTE------------------------------ Not required to be performed until 12 hours after decreasing RCS cold leg temperature to ≤ 297°F. -- Perform a COT on each required PORV, excluding actuation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.9	Perform CHANNEL CALIBRATION for each required PORV actuation channel.	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. 0.8 gpm unidentified LEAKAGE;

c. 10 gpm identified LEAKAGE; and

d. 150 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 operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	B.1 Reduce LEAKAGE to within limits.	4 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. 2. Not applicable to primary to secondary LEAKAGE. ---------- Verify RCS operational LEAKAGE is within limits by performance of RCS water inventory balance.	In accordance with the Surveillance Frequency Control Program
SR 3.4.13.2	-----NOTES----- Not required to be performed until 12 hours after establishment of steady state operation. ---------- Verify primary to secondary LEAKAGE is ≤ 150 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 RCS PIV shall be within limit.

AND

The Residual Heat Removal (RHR) System interlock shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except valves in the RHR flow path when in, or during the transition to or from, the RHR 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 RCS PIV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more flow paths with leakage from one or more RCS PIVs not within limit.	-----NOTE----- Each valve used to satisfy Required Action A.1 and Required Action A.2 must have been verified to meet SR 3.4.14.1 and be in the reactor coolant pressure boundary or the high pressure portion of the system.	
	A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve.	24 hours
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.2	Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	B.2	Be in MODE 5.	36 hours
C. RHR System interlock function inoperable.	C.1	Isolate the affected penetration by use of one closed manual or deactivated automatic valve.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	-------------------NOTE------------------- Only required to be performed in MODES 1 and 2. --	
	Verify leakage from each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ 2215 psig and ≤ 2255 psig.	In accordance with the INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.14.2	Verify RHR System interlock prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ 600 psig.	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 containment sump monitor in each sump;

b. One containment atmosphere particulate radioactivity monitor; and

c. One containment atmosphere gaseous radioactivity monitor.

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

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Containment atmosphere particulate radioactivity monitor inoperable.	B.1.1 Analyze grab samples of the containment atmosphere.	Once per 12 hours
	<u>OR</u>	
	B.1.2 -------------NOTE------------- Not required until 12 hours after establishment of steady state operation. ----------------------------------	
	Perform SR 3.4.13.1.	Once per 12 hours
	<u>AND</u>	
	B.2 Restore containment atmosphere particulate radioactivity monitor to OPERABLE status.	30 days
C. Containment atmosphere gaseous radioactivity monitor inoperable.	C.1.1 Analyze grab samples of the containment atmosphere.	Once per 24 hours
	<u>OR</u>	
	C.1.2 -------------NOTE------------- Not required until 12 hours after establishment of steady state operation. ----------------------------------	
	Perform SR 3.4.13.1.	Once per 24 hours
	<u>AND</u>	
	C.2 Restore containment atmosphere gaseous radioactivity monitor to OPERABLE status.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Containment sump monitor(s) inoperable. AND Containment atmosphere particulate radioactivity monitor inoperable.	D.1	Analyze grab samples of the containment atmosphere.	Once per 12 hours
	AND		
	D.2.1	Restore containment sump monitor(s) to OPERABLE status.	7 days
	OR		
	D.2.2	Restore containment atmosphere particulate radioactivity monitor to OPERABLE status.	7 days
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1	Be in MODE 3.	6 hours
	AND		
	E.2	Be in MODE 5.	36 hours
F. All required monitors inoperable.	F.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitors.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.2	Perform COT of the required containment atmosphere radioactivity monitors.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the containment sump monitors.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.4	Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitors.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 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 ≤ 60 μCi/gm.	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. Required Action and associated Completion Time of Condition A not met. OR DOSE EQUIVALENT I-131 > 60 μCi/gm OR DOSE EQUIVALENT XE-133 not within limit.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Be in Mode 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity ≤ 215.1 μCi/gm.	In accordance with the Surveillance Frequency Control Program
SR 3.4.16.2	Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Between 2 and 6 hours after a THERMAL POWER change of ≥ 15% RTP within a 1 hour period

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Steam Generator (SG) Tube Integrity

LCO 3.4.17 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.

ACTIONS

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

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.	7 days
	AND	
	A.2 Plug the affected tube(s) in accordance with the Steam Generator Program.	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.	6 hours
	AND	
	B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.17.2	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 Accumulators

LCO 3.5.1 Four ECCS accumulators shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS pressure > 1000 psig.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One accumulator inoperable due to boron concentration not within limits.	A.1	Restore boron concentration to within limits.	72 hours
B. One accumulator inoperable for reasons other than Condition A.	B.1	Restore accumulator to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Reduce RCS pressure to ≤ 1000 psig.	12 hours
D. Two or more accumulators inoperable.	D.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each accumulator isolation valve is fully open.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	Verify borated water volume in each accumulator is ≥ 921 ft^3 and ≤ 971 ft^3.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify nitrogen cover pressure in each accumulator is ≥ 585 psig and ≤ 658 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify boron concentration in each accumulator is ≥ 2400 ppm and ≤ 2600 ppm.	In accordance with the Surveillance Frequency Control Program <u>AND</u> --------NOTE-------- Only required to be performed for affected accumulators ----------------------- Once within 6 hours after each solution volume increase of ≥ 13 ft^3 that is not the result of addition from the refueling water storage tank

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.5	Verify power is removed from each accumulator isolation valve operator when RCS pressure is ≥ 2000 psig.	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, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more trains inoperable.	A.1 Restore train(s) to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours
C. Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	C.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify the following valves are in the listed position with power to the valve operator removed. Number / Position / Function 1-IMO-261 / Open / SI suction line 1-IMO-262 / Open / Mini flow line 1-IMO-263 / Open / Mini flow line 1-IMO-315 / Closed / Low head SI to hot leg 1-IMO-325 / Closed / Low head SI to hot leg 1-IMO-390 / Open / RWST to RHR 1-ICM-305 / Closed / Sump line 1-ICM-306 / Closed / Sump line	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	-------------------NOTE------------------- Not required to be met for system vent flow paths opened under administrative control. -- 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
SR 3.5.2.3	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 3.5.2.4	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 3.5.2.5	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	Verify, for each ECCS throttle valve listed below, each position stop is in the correct position. <u>Valve Number</u> 1-SI-121 N 1-SI-121 S 1-SI-141 L1 1-SI-141 L2 1-SI-141 L3 1-SI-141 L4	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	DELETED	
SR 3.5.2.8	Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One ECCS train shall be OPERABLE.

APPLICABILITY: MODE 4.

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable to ECCS centrifugal charging subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS residual heat removal (RHR) subsystem inoperable.	A.1 Initiate action to restore required ECCS RHR subsystem to OPERABLE status.	Immediately
B. Required ECCS centrifugal charging subsystem inoperable.	B.1 Restore required ECCS centrifugal charging subsystem to OPERABLE status.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 5.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	-------------------------------NOTE------------------------------ For SR 3.5.2.2, the SR is modified to allow the valves to not be in the correct position, provided they can be aligned to the correct position. --- The following SRs are applicable for all equipment required to be OPERABLE: SR 3.5.2.2, SR 3.5.2.6, and SR 3.5.2.3, SR 3.5.2.8	In accordance with applicable SRs

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Refueling Water Storage Tank (RWST)

LCO 3.5.4 The RWST shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RWST boron concentration not within limits. OR RWST borated water temperature not within limits.	A.1 Restore RWST to OPERABLE status.	8 hours
B. RWST inoperable for reasons other than Condition A.	B.1 Restore RWST to OPERABLE status.	1 hour
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	Verify RWST borated water temperature is ≥ 70°F and ≤ 100°F.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.2	Verify RWST borated water volume is ≥ 375,500 gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.3	Verify RWST boron concentration is ≥ 2400 ppm and ≤ 2600 ppm.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.5 Seal Injection Flow

LCO 3.5.5 Reactor coolant pump seal injection flow resistance shall be ≥ 0.227 ft/gpm^2.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Seal injection flow resistance not within limit.	A.1 Restore seal injection flow resistance to within limit.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.5.1	-------------------------------NOTE------------------------------ Not required to be performed until 4 hours after the pressurizer pressure stabilizes at ≥ 2215 psig and ≤ 2255 psig. --- Verify seal injection flow resistance is ≥ 0.227 ft/gpm^2.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1 Containment

LCO 3.6.1 Containment shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks

LCO 3.6.2 Two containment air locks shall be OPERABLE.

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

ACTIONS

--NOTES--

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

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

ACTIONS (continued)

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

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

ACTIONS

-----NOTES-----

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. -----NOTE----- Only applicable to penetration flow paths with two containment isolation valves. ----- One or more penetration flow paths with one containment isolation valve inoperable.	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.	4 hours
	<u>AND</u>		

ACTIONS (continued)

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. ------------NOTE------------ Only applicable to penetration flow paths with only one containment isolation valve and a closed system. ------------------------------------ One or more penetration flow paths with one containment isolation valve inoperable.	C.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	72 hours
	AND		
	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.	Once per 31 days
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Verify each containment purge valve is closed, except when the containment purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances or maintenance activities that require the valves to be open, provided only valves in one containment purge supply penetration and one containment purge exhaust penetration are open.	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 controls. --- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	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 containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days

SURVEILLANCE REQUIREMENTS (continued)

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

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be ≥ -1.5 psig and ≤ +0.3 psig.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment pressure not within limits.	A.1 Restore containment pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1	Verify containment pressure is within limits.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature

LCO 3.6.5 Containment average air temperature shall be:

a. ≥ 60°F and ≤ 100°F for the containment upper compartment and

b. ≥ 60°F and ≤ 120°F for the containment lower compartment.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature not within limits.	A.1 Restore containment average air temperature to within limits.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1	Verify containment upper compartment average air temperature is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.2	Verify containment lower compartment average air temperature is within limits.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray System

LCO 3.6.6 Two containment spray trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	-----NOTE----- Not required to be met for system vent flow paths opened under administrative control. ---------- Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.2	Verify each containment 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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.3	-------------------------------NOTE------------------------------ In MODE 4, only the manual portion of the actuation signal is required. --- Verify each automatic containment spray 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 3.6.6.4	-------------------------------NOTE------------------------------ In MODE 4, only the manual portion of the actuation signal is required. --- Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	 In accordance with the Surveillance Frequency Control Program
SR 3.6.6.5	Verify each spray nozzle is unobstructed.	Following maintenance that could result in nozzle blockage
SR 3.6.6.6	Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.7 Spray Additive System

LCO 3.6.7 The Spray Additive System shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify each spray additive manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.7.2	Verify spray additive tank solution volume is $\geq$ 4000 gal and $\leq$ 4600 gal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.7.3	Verify spray additive tank NaOH solution concentration is ≥ 30% and ≤ 34% by weight.	In accordance with the Surveillance Frequency Control Program
SR 3.6.7.4	Verify each spray additive 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 3.6.7.5	Verify spray additive flow rate from each solution's flow path.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.8 Deleted

3.6 CONTAINMENT SYSTEMS

3.6.9 Distributed Ignition System (DIS)

LCO 3.6.9 Two DIS trains shall be OPERABLE. (See footnote 1)

AND

Each containment region shall have at least one OPERABLE hydrogen ignitor. (See footnote 2)

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One DIS train inoperable. (See footnote 1)	A.1	Restore DIS train to OPERABLE status.	7 days
	OR		
	A.2	Perform SR 3.6.9.1 on the OPERABLE train.	Once per 7 days
B. One containment region with no OPERABLE hydrogen ignitor. (See footnote 2)	B.1	Restore one hydrogen ignitor in the affected containment region to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours

Footnote 1: For the remainder of Fuel Cycle 25, or until the next entry into MODE 3, DIS Train B may be considered OPERABLE with two lower containment Phase 3 Power Supply ignitors inoperable.

Footnote 2: For the remainder of Fuel Cycle 25, or until the next entry into MODE 3, one of the following regions is allowed to have no OPERABLE ignitor: Region 12, 13, 14, 15, or 16.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.9.1	Energize each DIS train power supply breaker and verify ≥ 34 ignitors or ≥ 33 ignitors if allowed by footnote 1 are energized in each train.	In accordance with the Surveillance Frequency Control Program
SR 3.6.9.2	Verify at least one hydrogen ignitor is OPERABLE in each containment region. (See footnote 2)	In accordance with the Surveillance Frequency Control Program
SR 3.6.9.3	Energize each hydrogen ignitor and verify temperature is ≥ 1700°F. (See footnote 1)	In accordance with the Surveillance Frequency Control Program

Footnote 1: For the remainder of Fuel Cycle 25, or until the next entry into MODE 3, DIS Train B may be considered OPERABLE with two lower containment Phase 3 Power Supply ignitors inoperable.

Footnote 2: For the remainder of Fuel Cycle 25, or until the next entry into MODE 3, one of the following regions is allowed to have no OPERABLE ignitor: Region 12, 13, 14, 15, or 16

3.6 CONTAINMENT SYSTEMS

3.6.10 Containment Air Recirculation/Hydrogen Skimmer (CEQ) System

LCO 3.6.10 Two CEQ trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CEQ train inoperable.	A.1 Restore CEQ train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.10.1	-------------------------------NOTE------------------------------ Only required to be met in MODES 1, 2, and 3. --- Verify each CEQ System fan starts on an actual or simulated actuation signal, after a delay of ≥ 270 seconds and ≤ 300 seconds, and operates for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.10.2	Verify, with the return air fan discharge backdraft damper locked closed and the fan motor energized, the static pressure between the fan discharge and the backdraft damper is ≥ 4.0 inches water gauge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.10.3	Verify, with the CEQ System fan not operating, each CEQ System fan damper opens when ≤ 11.0 lb is applied to the counterweight.	In accordance with the Surveillance Frequency Control Program
SR 3.6.10.4	-------------------------------NOTE------------------------------ Only required to be met in MODES 1, 2, and 3. --- Verify the motor operated valve in the hydrogen skimmer header opens on an actual or simulated actuation system.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.11 Ice Bed

LCO 3.6.11 The ice bed shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Ice bed inoperable.	A.1 Restore ice bed to OPERABLE status.	48 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.11.1	Verify maximum ice bed temperature is ≤ 27°F.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.11.2	Verify total mass of stored ice is ≥ 2,200,000 lbs by calculating the mass of stored ice, at a 95% confidence level, in each of three radial zones as defined below, by selecting a random sample of ≥ 30 ice baskets in each radial zone, and verify: a. Zone A (radial rows 7, 8, and 9) has a total mass ≥ 733,400 lbs; b. Zone B (radial rows 4, 5, and 6) has a total mass ≥ 733,400 lbs; and c. Zone C (radial rows 1, 2, and 3) has a total mass ≥ 733,400 lbs.	In accordance with the Surveillance Frequency Control Program
SR 3.6.11.3	Verify that the ice mass of each basket sampled in SR 3.6.11.2 is ≥ 600 lbs.	In accordance with the Surveillance Frequency Control Program
SR 3.6.11.4	Verify, by visual inspection, accumulation of ice on structural members comprising flow channels through the ice bed is ≤ 15 percent blockage of the total flow area for each safety analysis section.	In accordance with the Surveillance Frequency Control Program
SR 3.6.11.5	Visually inspect, for detrimental structural wear, cracks, corrosion, or other damage, two ice baskets from each group of bays as defined below: a. Group 1 - bays 1 through 8; b. Group 2 - bays 9 through 16; and c. Group 3 - bays 17 through 24.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.11.6	-------------------------------NOTE------------------------------ The requirements of this SR are satisfied if the boron concentration and pH values obtained from averaging the individual sample results are within the limits specified below. --- Verify, by chemical analysis of the stored ice in at least one randomly selected ice basket from each ice condenser bay, that ice bed: a. Boron concentration is a ≥ 1800 ppm and ≤ 2300 ppm; and b. pH is ≥ 9.0 and ≤ 9.5.	In accordance with the Surveillance Frequency Control Program
SR 3.6.11.7	-------------------------------NOTE------------------------------ The chemical analysis may be performed on either the liquid solution or on the resulting ice. --- Verify, by chemical analysis, that ice added to the ice condenser meets the boron concentration and pH requirements of SR 3.6.11.6.	Each ice addition

3.6 CONTAINMENT SYSTEMS

3.6.12 Ice Condenser Doors

LCO 3.6.12 The ice condenser inlet doors, intermediate deck doors, and top deck doors shall be OPERABLE and closed.

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

ACTIONS

---NOTES---

1. Separate Condition entry is allowed for each ice condenser door.

2. When an ice condenser intermediate deck or top deck door is inoperable for a short duration solely due to personnel standing on or opening the door to perform required Surveillances, minor preventative maintenance, or system walkdowns, entry into associated Conditions and Required Actions is not required.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more ice condenser inlet doors inoperable due to being physically restrained from opening.	A.1 Restore inlet door to OPERABLE status.	1 hour
B. One or more ice condenser doors inoperable for reasons other than Condition A or not closed.	B.1 Verify maximum ice bed temperature is ≤ 27°F.	Once per 4 hours
	AND	
	B.2 Restore ice condenser door to OPERABLE status and closed position.	14 days
C. Required Action and associated Completion Time of Condition B not met.	C.1 Restore ice condenser door to OPERABLE status and closed position.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.12.1	Verify all inlet doors are closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.12.2	Verify, by visual inspection, each intermediate deck door is closed and not impaired by ice, frost, or debris.	In accordance with the Surveillance Frequency Control Program
SR 3.6.12.3	Verify, by visual inspection, each top deck door: a. Is in place; and b. Has no condensation, frost, or ice formed on the door that would restrict its opening.	In accordance with the Surveillance Frequency Control Program
SR 3.6.12.4	Verify, by visual inspection, each inlet door is not impaired by ice, frost, or debris.	In accordance with the Surveillance Frequency Control Program
SR 3.6.12.5	Verify torque required to cause each inlet door to begin to open is ≤ 675 in-lb.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.12.6	Perform a torque test on each inlet door.	In accordance with the Surveillance Frequency Control Program
SR 3.6.12.7	Verify for each intermediate deck door: a. No visual evidence of structural deterioration; b. Free movement of the vent assemblies; and c. Free movement of the door.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.13 Divider Barrier Integrity

LCO 3.6.13 Divider barrier integrity shall be maintained.

------------------------------------NOTE------------------------------------
The personnel access doors may be opened intermittently under administrative control for personnel transit.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. -----------NOTE----------- Separate Condition entry is allowed for each personnel access door or equipment hatch. ---------------------------- One or more personnel access doors or equipment hatches open or inoperable.	A.1	Restore personnel access doors and equipment hatches to OPERABLE status and closed positions.	1 hour
B. Divider barrier seal inoperable.	B.1	Restore seal to OPERABLE status.	1 hour
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 3.6.13.1	Verify, by visual inspection, all personnel access doors and equipment hatches between upper and lower containment compartments are closed.	Prior to entering MODE 4 from MODE 5
SR 3.6.13.2	Verify, by visual inspection, that the seals and sealing surfaces of each personnel access door and equipment hatch have: a. No detrimental misalignments; b. No cracks or defects in the sealing surfaces; and c. No apparent deterioration of the seal material.	Prior to final closure after each opening <u>AND</u> --------NOTE-------- Only required for seals made of resilient materials ------------------------ In accordance with the Surveillance Frequency Control Program
SR 3.6.13.3	Verify, by visual inspection, each personnel access door or equipment hatch that has been opened for personnel transit entry is closed.	After each opening
SR 3.6.13.4	Remove two divider barrier seal test coupons and verify: a. Both test coupons' tensile strength is ≥ 120 psi; and b. Both test coupons' elongation is ≥ 100%.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.13.5	Visually inspect ≥ 95% of the divider barrier seal length, and verify: a. Seal and seal mounting connections are installed such that the total divider barrier bypass area is maintained within design limits; and b. Seal material shows no evidence of deterioration due to holes, ruptures, chemical attack, abrasion, radiation damage, or changes in physical appearance.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.14 Containment Recirculation Drains

LCO 3.6.14 The ice condenser floor drains, two refueling canal drains, one drain in each Containment Air Recirculation/Hydrogen Skimmer System (CEQ) fan room, and the flood-up overflow wall flow paths shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One ice condenser floor drain inoperable.	A.1	Restore ice condenser floor drain to OPERABLE status.	1 hour
B. One required refueling canal drain inoperable.	B.1	Restore required refueling canal drain to OPERABLE status.	1 hour
C. One required CEQ fan room drain inoperable.	C.1	Restore required CEQ fan room drain to OPERABLE status.	1 hour
D. One flood-up overflow wall flow path inoperable.	D.1	Restore flood-up overflow wall flow path to OPERABLE status.	1 hour
E. Required Action and associated Completion Time not met.	E.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	E.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.14.1	Verify, by visual inspection, that no debris is present in the upper containment or refueling canal that could obstruct the required refueling canal drains.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Prior to entering MODE 4 from MODE 5 after each partial or complete fill of the canal
SR 3.6.14.2	Verify, by visual inspection, that: a. Each required refueling canal drain blind flange is removed; and b. Each required refueling canal drain is not obstructed by debris.	Prior to entering MODE 4 from MODE 5 after each partial or complete fill of the canal
SR 3.6.14.3	Verify for each ice condenser floor drain that the: a. Valve opening is not impaired by ice, frost, or debris; b. Valve seat shows no evidence of damage; c. Valve opening force is ≤ 100 lb; and d. Drain line from the ice condenser floor to the lower compartment is unrestricted.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.6.14.4	------------------------------NOTE------------------------------ Required only for CEQ fan room that is entered when performed after personnel entry in MODES 1 through 4. -- Verify, by visual inspection, that no debris is present in the CEQ fan rooms that could obstruct the required CEQ fan room drains and the required drain line debris interceptors are not obstructed by debris.	Prior to entering MODE 4 from MODE 5 <u>AND</u> After personnel entry into a CEQ fan room in MODES 1 through 4.
SR 3.6.14.5	Verify by visual inspection, for each required CEQ fan room drain line that the: a. Drain line debris interceptor is installed; b. Drain line debris interceptor shows no evidence of structural distress; c. Pipe tunnel (annulus) sump flow opening is not obstructed.	24 months
SR 3.6.14.6	------------------------------NOTE------------------------------ Required only for area of lower containment that is entered when performed after personnel entry in MODES 1 through 4. -- Verify, by visual inspection, that no debris is present in the lower containment that could obstruct the flood-up overflow wall flow paths and that the flow paths are not obstructed by debris.	Prior to entering MODE 4 from MODE 5 <u>AND</u> After personnel entry into lower containment in MODES 1 through 4.
SR 3.6.14.7	Verify, by visual inspection, that the flood-up overflow wall debris interceptor is installed and is free of structural distress.	24 months

3.6 CONTAINMENT SYSTEMS

3.6.15 Containment Recirculation Sump

LCO 3.6.15 The containment recirculation sump shall be OPERABLE.

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

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Containment recirculation 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 containment recirculation sump. 2. Enter applicable Conditions and Required Actions of LCO 3.6.6, "Containment Spray System," for containment spray trains made inoperable by the containment sump. --- Restore the containment recirculation sump to OPERABLE status.	72 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	C.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.15.1	Verify, by visual inspection, the containment recirculation 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 Five MSSVs per steam generator shall be OPERABLE.

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 steam generators with one or more MSSVs inoperable.	A.1 Reduce THERMAL POWER to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs.	4 hours
	<u>AND</u>	
	A.2 -----NOTE----- Only required in MODE 1. ----- Reduce the Power Range Neutron Flux - High reactor trip setpoint to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more steam generators with ≥ 4 MSSVs inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	-----NOTE----- Only required to be performed in MODES 1 and 2. ---------- Verify each required MSSV is OPERABLE in accordance with the INSERVICE TESTING PROGRAM with the lift setpoint per Table 3.7.1-2. Following testing, lift setting shall be within ±1%.	In accordance with the INSERVICE TESTING PROGRAM

Table 3.7.1-1 (page 1 of 1)
OPERABLE Main Steam Safety Valves versus
Maximum Allowable Power

NUMBER OF OPERABLE MSSVs PER STEAM GENERATOR	MAXIMUM ALLOWABLE POWER (% RTP)
4	63.8
3	45.5
2	27.4

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

VALVE NUMBER				LIFT SETTING (psig ± 3%)
STEAM GENERATOR				
#1	#2	#3	#4	
SV-1A	SV-1A	SV-1A	SV-1A	1065
SV-1B	SV-1B	SV-1B	SV-1B	1065
SV-2A	SV-2A	SV-2A	SV-2A	1075
SV-2B	SV-2B	SV-2B	SV-2B	1075
SV-3	SV-3	SV-3	SV-3	1085

3.7 PLANT SYSTEMS

3.7.2 Steam Generator Stop Valves (SGSVs)

LCO 3.7.2 Four SGSVs and their associated actuator trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One SGSV actuator train inoperable.	A.1	Restore SGSV actuator train to OPERABLE status.	7 days
B. Two SGSVs each with one actuator train inoperable such that the inoperable actuator trains are in different ESF Divisions.	B.1	Restore one SGSV actuator train to OPERABLE status.	72 hours
C. Two SGSVs each with one actuator train inoperable and both inoperable actuator trains are in the same ESF Division.	C.1	Restore one SGSV actuator train to OPERABLE status.	24 hours
D. Two SGSV actuator trains inoperable on the same SGSV.	D.1	Declare the affected SGSV inoperable.	Immediately

(continued)

ACTIONS (cont'd)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Three or more SGSV actuator trains inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A, B, or C not met.	E.1	Declare each affected SGSV inoperable.	Immediately
F. One SGSV inoperable in MODE 1.	F.1	Restore SGSV to OPERABLE status.	8 hours
G. Required Action and associated Completion Time of Condition F not met.	G.1	Be in MODE 2.	6 hours
H. ------------NOTE------------ Separate Condition entry is allowed for each SGSV. -------------------------------- One or more SGSVs inoperable in MODE 2 or 3.	H.1 <u>AND</u> H.2	Close SGSV. Verify SGSV is closed.	8 hours Once per 7 days
I. Required Action and associated Completion Time of Condition H not met.	I.1 <u>AND</u> I.2	Be in MODE 3. Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	-----------------------------NOTE----------------------------- Only required to be performed in MODES 1 and 2. -- Verify the isolation time of each SGSV is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.2.2	-----------------------------NOTE----------------------------- Only required to be performed in MODES 1 and 2. -- Verify each actuator train actuates the SGSV 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) and Main Feedwater Regulation Valves (MFRVs)

LCO 3.7.3 Four MFIVs and four MFRVs shall be OPERABLE.

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

ACTIONS

---NOTE---

Separate Condition entry is allowed for each valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MFIVs inoperable.	A.1 Close or isolate MFIV.	72 hours
	<u>AND</u>	
	A.2 Verify MFIV is closed or isolated.	Once per 7 days
B. One or more MFRVs inoperable.	B.1 Close or isolate MFRV.	72 hours
	<u>AND</u>	
	B.2 Verify MFRV is closed or isolated.	Once per 7 days
C. MFIV and MFRV in the same flow path inoperable.	C.1 Isolate affected flow path.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify the isolation time of each MFIV is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.3.2	Verify the isolation time of each MFRV is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.3.3	Verify each MFIV and MFRV 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 Steam Generator (SG) Power Operated Relief Valves (PORVs)

LCO 3.7.4 Four SG PORVs shall be OPERABLE.

-----NOTE-----
Only the SG PORVs associated with the SGs required to be OPERABLE by LCO 3.4.6, "RCS Loops - MODE 4," are required to be OPERABLE in MODE 4.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SG PORV inoperable in MODE 1, 2, or 3.	A.1 Restore SG PORV to OPERABLE status.	7 days
B. Two or more SG PORVs inoperable in MODE 1, 2, or 3.	B.1 Restore all but one SG PORV to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	C.2 Be in MODE 4 without reliance upon steam generator for heat removal.	24 hours
D. One or more required SG PORVs inoperable in MODE 4.	D.1 Initiate action to restore inoperable SG PORV(s) to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify one complete cycle of each SG PORV.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

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

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Turbine driven AFW train inoperable due to one inoperable steam supply. <u>OR</u> ------------NOTE------------ Only applicable if MODE 2 has not been entered following refueling. --------------------------------- Turbine driven AFW pump inoperable in MODE 3 following refueling.	A.1 Restore affected equipment to OPERABLE status.	7 days <u>AND</u> 10 days from discovery of failure to meet the LCO

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One AFW train inoperable in MODE 1, 2, or 3 for reasons other than Condition A.	B.1	Restore AFW train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO
C. Turbine driven AFW train inoperable due to one inoperable steam supply. AND One motor driven AFW train inoperable.	C.1	Restore the steam supply to the turbine driven train to OPERABLE status.	24 hours
	OR		
	C.2	Restore the motor driven AFW train to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met. OR Two AFW trains inoperable in MODE 1, 2, or 3 for reasons other than Condition C.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 4.	18 hours
E. Three AFW 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 AFW train is restored to OPERABLE status. ------------------------------------- Initiate action to restore one AFW train to OPERABLE status.	Immediately

ACTIONS (Continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Required AFW train inoperable in MODE 4.	F.1	Initiate action to restore AFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	-----------------------------NOTE----------------------------- AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation. --- Verify each required AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.2	-----------------------------NOTE----------------------------- Not required to be performed for the turbine driven AFW pump until 24 hours after ≥ 850 psig in the steam generator. --- Verify the developed head of each required AFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.7.5.3	-------------------------------NOTES---------------------------- 1. AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation. 2. Only required to be met in MODES 1, 2, and 3. --- Verify each AFW 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	------------------------------NOTES----------------------------- 1. Not required to be performed for the turbine driven AFW pump until 24 hours after $\geq$ 850 psig in the steam generator. 2. AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation. 3. Only required to be met in MODES 1, 2, and 3. --- Verify each AFW pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST 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. CST inoperable.	A.1 Verify by administrative means OPERABILITY of backup water supply. AND A.2 Restore CST 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 the CST volume is ≥ 182,000 gal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW trains shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.8 Essential Service Water (ESW) System

LCO 3.7.8 Two ESW trains shall be OPERABLE.

-----NOTE-----
When an ESW train is crosstied with the associated Unit 2 ESW train, OPERABILITY of the ESW train includes the associated Unit 2 ESW pump.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESW train inoperable.	A.1 -----NOTES----- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by ESW System. 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by ESW System. ------------ Restore ESW train to OPERABLE status.	72 hours

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	------------------------------NOTE------------------------------ Isolation of ESW System flow to individual components does not render the ESW System inoperable. --- Verify each ESW 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
SR 3.7.8.2	Verify each ESW 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 3.7.8.3	Verify each required ESW pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. UHS inoperable.	A.1 Be in MODE 3. AND A.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify average water temperature of UHS is within limit.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation (CREV) System

LCO 3.7.10 Two CREV trains shall be OPERABLE.

-----NOTE-----
The control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, and 4,
During movement of irradiated fuel assemblies in the containment, auxiliary building, and the Unit 2 containment.

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Two CREV trains inoperable due to inoperable filter unit in MODE 1, 2, 3, or 4.	C.1	Restore filter unit to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met in MODE 1, 2, 3, or 4.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours
E. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	E.1	Place OPERABLE CREV train in pressurization/ cleanup mode.	Immediately
	OR		
	E.2	Suspend movement of irradiated fuel assemblies.	Immediately
F. Two CREV trains inoperable during movement of irradiated fuel assemblies. OR One or more CREV trains inoperable due to an inoperable CRE boundary during movement of irradiated fuel assemblies.	F.1	Suspend movement of irradiated fuel assemblies.	Immediately
G. Two CREV trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Conditions B and C.	G.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREV train for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.10.2	Perform required CREV System filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.10.3	------------------------------NOTE------------------------------ Only required to be met in MODES 1, 2, 3, and 4. --- Verify each CREV System 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
SR 3.7.10.4	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

3.7.11 Control Room Air Conditioning (CRAC) System

LCO 3.7.11 Two CRAC 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 CRAC train inoperable.	A.1	Restore CRAC 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.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours
C. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	C.1	Place OPERABLE CRAC train in operation.	Immediately
	OR		
	C.2	Suspend movement of irradiated fuel assemblies.	Immediately
D. Two CRAC trains inoperable during movement of irradiated fuel assemblies.	D.1	Suspend movement of irradiated fuel assemblies.	Immediately
E. Two CRAC trains inoperable in MODE 1, 2, 3, or 4.	E.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify, with one CRAC train in operation, the control room air temperature is ≤ 85°F.	In accordance with the Surveillance Frequency Control Program
SR 3.7.11.2	Verify each CRAC train can maintain control room air temperature ≤ 85°F.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.12 Engineered Safety Features (ESF) Ventilation System

LCO 3.7.12 Two ESF Ventilation trains shall be OPERABLE.

-----------------------------------NOTE-----------------------------------
The ESF enclosure boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One ESF Ventilation train inoperable.	A.1	Restore ESF Ventilation train to OPERABLE status.	7 days
B. Two ESF Ventilation trains inoperable due to inoperable ESF enclosure boundary.	B.1	Restore ESF enclosure boundary to OPERABLE status.	24 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 3.7.12.1	Operate each ESF Ventilation train for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.12.2	Perform required ESF Ventilation System filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.12.3	Verify each ESF Ventilation 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
SR 3.7.12.4	Verify one ESF Ventilation train can maintain a negative pressure relative to adjacent areas during the post accident mode of operation at a flow rate of ≤ 22,500 cfm.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.13 Fuel Handling Area Exhaust Ventilation (FHAEV) System

LCO 3.7.13 One FHAEV train shall be OPERABLE and in operation.

--NOTE--
The auxiliary building boundary may be opened intermittently under administrative control.

APPLICABILITY: During movement of irradiated fuel assemblies in the auxiliary building.

ACTIONS

--NOTE--
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required FHAEV train inoperable or not in operation.	A.1 Suspend movement of irradiated fuel assemblies in the auxiliary building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.13.1 Verify required FHAEV train is operating.	In accordance with the Surveillance Frequency Control Program
SR 3.7.13.2 Operate required FHAEV fan for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.13.3	Perform required FHAEV System filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.13.4	Verify required FHAEV 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
SR 3.7.13.5	Verify required FHAEV train can maintain a pressure ≥ 0.125 inches of vacuum water gauge with respect to atmospheric pressure during the accident mode of operation at a flow rate ≤ 27,000 cfm.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.14 Fuel Storage Pool Water Level

LCO 3.7.14 The fuel storage pool water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.14.1	Verify the fuel storage pool water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated in the storage racks.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.15 Fuel Storage Pool Boron Concentration

LCO 3.7.15 The fuel storage pool boron concentration shall be ≥ 2400 ppm.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool boron concentration not within limit.	--------------------NOTE------------------- LCO 3.0.3 is not applicable. ---	
	A.1 Suspend movement of fuel assemblies in the fuel storage pool.	Immediately
	<u>AND</u>	
	A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.	Immediately
	<u>OR</u>	
	A.2.2 Initiate action to perform a fuel storage pool verification.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.15.1	Verify the fuel storage pool boron concentration is within limit.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.16 Spent Fuel Pool Storage

LCO 3.7.16 The initial enrichment and burnup of each fuel assembly stored in Region 2 or 3 shall be within the Acceptable Burnup Criteria of Table 3.7.16-1.

APPLICABILITY: Whenever any fuel assembly is stored in Region 2 or 3 of the spent fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 ------------NOTE------------ LCO 3.0.3 is not applicable. -------------------------------- Initiate action to move the noncomplying fuel assembly from Region 2 or 3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.16.1	Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Table 3.7.16-1.	Prior to storing the fuel assembly in Region 2 or 3

Table 3.7.16-1 (page 1 of 1)
ACCEPTABLE BURNUP CRITERIA

SPENT FUEL STORAGE POOL REGION	FUEL CRITERIA
Region 2	4.95% initial nominal enrichment burned to ≥ 50,000 MWD/MtU, or fuel of other enrichments with equivalent reactivity[1]
Region 3	4.95% initial nominal enrichment burned to ≥ 38,000 MWD/MtU, or fuel of other enrichments with equivalent reactivity[1]

(1) The equivalent reactivity criteria for Region 2 and Region 3 is defined via the following equations:

<u>For Region 2 Storage</u>

Minimum Assembly Average Burnup in MWD/MtU = $-22{,}670 + 22{,}220\,E - 2{,}260\,E^2 + 149\,E^3$

<u>For Region 3 Storage</u>

Minimum Assembly Average Burnup in MWD/MtU = $-26{,}745 + 18{,}746\,E - 1{,}631\,E^2 + 98.4\,E^3$

Where E = Initial Peak Enrichment (in %)

3.7 PLANT SYSTEMS

3.7.17 Secondary Specific Activity

LCO 3.7.17 The specific activity of the secondary coolant shall be ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.17.1	Verify the specific activity of the secondary coolant is ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

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

b. Two diesel generators (DGs) capable of supplying the onsite Class 1E power distribution subsystem(s);

c. One Unit 2 qualified circuit between the offsite transmission network and the Unit 2 onsite Class 1E AC Electrical Power Distribution System capable of supporting the associated equipment required to be OPERABLE by LCO 3.7.8, "Essential Service Water (ESW) System"; and

d. The Unit 2 DG(s) capable of supporting the associated equipment required to be OPERABLE by LCO 3.7.8.

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

---NOTE---

The Unit 2 electrical power sources in LCO 3.8.1.c and LCO 3.8.1.d are not required to be OPERABLE when the associated required equipment is inoperable.

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	-----NOTE----- Not applicable if a required Unit 2 offsite circuit is inoperable. ---------- Perform SR 3.8.1.1 for required OPERABLE offsite circuit.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u>		
	A.2	Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)
	<u>AND</u>		
	A.3	Restore required offsite circuit to OPERABLE status.	72 hours <u>AND</u> 17 days from discovery of failure to meet LCO 3.8.1.a or b

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One required DG inoperable.	B.1	Verify both supplemental diesel generators are available.	1 hour AND Once per 12 hours thereafter
	AND		
	B.2	-----------NOTE----------- Not applicable if a required Unit 2 DG is inoperable. -------------------------------- Perform SR 3.8.1.1 for the required offsite circuit(s).	1 hour AND Once per 8 hours thereafter
	AND		
	B.3	Declare required feature(s) supported by the inoperable DG inoperable when its required redundant feature(s) is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	AND		
	B.4.1	Determine OPERABLE DG(s) is not inoperable due to common cause failure.	24 hours
	OR		
	B.4.2	Perform SR 3.8.1.2 for OPERABLE DG(s).	24 hours
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.5	Restore required DG to OPERABLE status.	14 days AND 17 days from discovery of failure to meet LCO 3.8.1.a or b
C. Required Action and associated Completion Time of Required Action B.1 not met.	C.1	Restore both supplemental diesel generators to available status.	72 hours
	OR		
	C.2	Restore required DG to OPERABLE status.	72 hours
D. Two required offsite circuits inoperable.	D.1	Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.	12 hours from discovery of Condition D concurrent with inoperability of redundant required features
	AND		
	D.2	Restore one required offsite circuit to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One required offsite circuit inoperable. AND One required DG inoperable.	------------------NOTE------------------ Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition E is entered with no AC power source to any train. --	
	E.1 Restore required offsite circuit to OPERABLE status.	12 hours
	OR	
	E.2 Restore required DG to OPERABLE status.	12 hours
F. Two required DGs inoperable.	F.1 Restore one required DG to OPERABLE status.	2 hours
G. Required Action and associated Completion Time of Condition A, C, D, E, or F not met. OR Required Action and Associated Completion Time of Required Action B.2, B.3, B.4.1, B.4.2, or B.5 not met.	G.1 Be in MODE 3. AND G.2 Be in MODE 5.	6 hours 36 hours
H. Three or more required AC sources inoperable.	H.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTES---

1. SR 3.8.1.1 through SR 3.8.1.22 are applicable only to the AC electrical power sources for Unit 1.

2. SR 3.8.1.23 is applicable only to the Unit 2 required AC electrical power sources. The Surveillances referenced in SR 3.8.1.23 are the Unit 2 Surveillance Requirements.

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	----------------------------NOTES---------------------------- 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 2. A modified DG start involving gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.8 must be met. --- Verify each DG starts from standby conditions and achieves steady state voltage ≥ 3910 V and ≤ 4400 V, and frequency ≥ 59.4 Hz and ≤ 60.5 Hz.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	-----------------------------NOTES----------------------------- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2 or SR 3.8.1.8. --- Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 3150 kW and ≤ 3500 kW.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4	Verify each day tank contains ≥ 101.4 gal 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 each required DG air start receiver pressure is ≥ 190 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.7	Verify each fuel oil transfer system operates to automatically transfer fuel oil from the storage tank to the day tank.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	-----------------------------NOTE------------------------------ All DG starts may be preceded by an engine prelube period. -- Verify each DG starts from standby condition and achieves: a. In ≤ 10 seconds, voltage ≥ 3910 V and frequency ≥ 59.4 Hz; and b. Steady state voltage ≥ 3910 V and ≤ 4400 V, and frequency ≥ 59.4 Hz and ≤ 60.5 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.9	-----------------------------NOTE------------------------------ SR 3.8.1.9.a is only required to be met when the auxiliary source is supplying the electrical power distribution subsystem. -- Verify: a. Automatic transfer from the auxiliary source to the preferred offsite circuit; and b. Manual alignment to the alternate offsite circuit.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	-----------------------------NOTES---------------------------- 1. If performed with the DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.86. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. --- Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 64.4 Hz; b. Within 2 seconds following load rejection, the voltage is ≥ 3910 V and ≤ 4400 V; and c. Within 2 seconds following load rejection, the frequency is ≥ 59.4 Hz and ≤ 60.5 Hz.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	------------------------------NOTES----------------------------- 1. If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.86. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. --- Verify each DG does not trip and voltage is maintained ≤ 5350 V during and following a load rejection of ≥ 3150 kW and ≤ 3500 kW.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	------------------------------NOTES------------------------------ 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---	
	Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. Energizes permanently connected loads in ≤ 10 seconds; 2. Energizes auto-connected shutdown loads through time delay relays, where applicable; 3. Maintains steady state voltage ≥ 3910 V and ≤ 4400 V; 4. Maintains steady state frequency ≥ 59.4 Hz and ≤ 60.5 Hz; and 5. Supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.13	-----------------------------NOTES---------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. 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 unit is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---	
	Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each DG auto-starts from standby condition and: a. In ≤ 10 seconds achieves voltage ≥ 3910 V and frequency ≥ 59.4 Hz; b. Achieves steady state voltage ≥ 3910 V and ≤ 4400 V and frequency ≥ 59.4 Hz and ≤ 60.5 Hz; c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are auto-connected through the time delay relays, where applicable, from the offsite power system.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	------------------------------NOTE------------------------------ This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. --- Verify each DG's automatic trips are bypassed on an actual or simulated loss of voltage signal on the emergency bus or an actual or simulated ESF actuation signal except: a. Engine overspeed; and b. Generator differential current.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.15	----------------------------NOTES---------------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.86. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. --- Verify each DG operates for ≥ 8 hours at a load ≥ 3150 kW and ≤ 3500 kW.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.16	------------------------------NOTES----------------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 3150 kW and ≤ 3500 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. --- Verify each DG starts and achieves: a. In ≤ 10 seconds, voltage ≥ 3910 V and frequency ≥ 59.4 Hz; and b. Steady state voltage ≥ 3910 V and ≤ 4400 V and frequency ≥ 59.4 Hz and ≤ 60.5 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.17	------------------------------NOTE------------------------------- This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. --- Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.18	-----------------------------NOTE------------------------------ This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---	
	Verify that the automatic sequence timing relays are OPERABLE with each load sequence time within ± 5% of its required value and that each load is sequenced on within the design allowable time limit.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.19	------------------------------NOTES------------------------------ 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---	
	Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. Energizes permanently connected loads in ≤ 10 seconds; 2. Energizes auto-connected emergency loads through time delay relays, as applicable; 3. Achieves steady state voltage ≥ 3910 V and ≤ 4400 V; 4. Achieves steady state frequency ≥ 59.4 Hz and ≤ 60.5 Hz; and 5. Supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.20	DELETED	
SR 3.8.1.21	------------------------------NOTE------------------------------ This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. --- Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ESF actuation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Verifying the emergency loads are serviced by offsite power.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.22	------------------------------NOTE------------------------------ All DG starts may be preceded by an engine prelube period. -- Verify when started simultaneously from standby condition, each DG achieves, in ≤ 10 seconds, voltage ≥ 3910 V and frequency ≥ 59.4 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.23	-----------------------------NOTES----------------------------- 1. When Unit 2 is in MODE 5 or 6, or moving irradiated fuel assemblies in the containment or auxiliary building, the following Unit 2 SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.10, SR 3.8.1.11, SR 3.8.1.12, SR 3.8.1.15, SR 3.8.1.16, SR 3.8.1.17, and SR 3.8.1.18. 2. Unit 2 SR 3.8.1.9.a is only required to be met when the auxiliary source is supplying the required Unit 2 electrical power distribution subsystem. -- For required Unit 2 AC sources, the SRs of Unit 2 Specification 3.8.1, except SR 3.8.1.9.b, SR 3.8.1.13, SR 3.8.1.14 (ESF actuation signal portion only), SR 3.8.1.19, SR 3.8.1.21, and SR 3.8.1.22, are applicable.	In accordance with applicable SRs

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 in the containment, auxiliary building, and Unit 2 containment.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. 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
	<u>OR</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	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 offsite circuit to OPERABLE status.	Immediately
B. 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	-----------------------------NOTE------------------------------ The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.10 through SR 3.8.1.12, SR 3.8.1.15 through SR 3.8.1.17, and SR 3.8.1.18. --- For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources -- Operating," except SR 3.8.1.9, SR 3.8.1.13, SR 3.8.1.14 (ESF actuation signal portion only), SR 3.8.1.19, SR 3.8.1.21, and SR 3.8.1.22, are applicable.	In accordance with applicable SRs
SR 3.8.2.2	One of the following SRs is applicable when the electrical distribution subsystem is being supplied by “backfeed” from an offsite source via the main transformer and a unit auxiliary transformer: a. SR 3.8.1.9.a when the preferred offsite circuit is required to be OPERABLE by LCO 3.8.2.a, or b. SR 3.8.1.9.b when the alternate offsite circuit is required to be OPERABLE by LCO 3.8.2.a.	In accordance with applicable SR

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil

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

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel volume < 46,000 gal and > 39,500 gal in storage tank.	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. Required Action and associated Completion Time not met. <u>OR</u> One or more DGs with diesel fuel oil subsystem not within limits for reasons other than Condition A, B, or C.	D.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains ≥ 46,000 gal 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	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 *The following DC electrical power subsystems shall be OPERABLE:*

a. Train A and Train B 250 VDC electrical power subsystems;

b. Train N 250 VDC electrical power subsystem; and

c. *Unit 2 Train A and Train B 250 VDC electrical power subsystems* capable of supplying the Unit 2 Essential Service Water System components required by LCO 3.7.8, "Essential Service Water (ESW) System."

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

-----NOTE-----
Train N 250 VDC electrical power subsystem is not required to be OPERABLE in MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required Train A or Train B battery charger inoperable.	A.1	Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	AND		
	A.2	Verify battery float current ≤ 2 amps.	Once per 12 hours
	AND		
	A.3	Restore required battery charger to OPERABLE status.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One Train A or Train B DC electrical power subsystem inoperable for reasons other than Condition A.	B.1	Restore DC electrical power subsystem to OPERABLE status.	2 hours
C. Required Action and Associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 5.	36 hours
D. Train N DC electrical power subsystem inoperable.	D.1	Declare the turbine driven auxiliary feedwater train inoperable.	Immediately
E. One or both required Unit 2 Train A and Train B electrical power subsystems inoperable.	E.1	Declare the associated ESW train(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTES---

1. SR 3.8.4.1 through SR 3.8.4.3 are applicable only to Unit 1 DC electrical power subsystems.

2. SR 3.8.4.4 is applicable only to the required Unit 2 DC electrical power subsystem(s).

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.2	Verify each required Train A and Train B battery charger supplies ≥ 300 amps and the required Train N battery charger supplies ≥ 25 amps at ≥ 250 VDC for ≥ 4 hours.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	------------------------------NOTES----------------------------- 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.3. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. 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.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.4	------------------------------NOTE------------------------------ When Unit 2 is in MODE 5 or 6, or moving irradiated fuel assemblies in the containment or auxiliary building, the following Unit 2 SRs are not required to be performed: SR 3.8.4.3. --- For the Unit 2 Train A and Train B 250 VDC electrical power subsystems, the SRs of the Unit 2 Specification 3.8.4 are applicable.	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 One Train A or Train B 250 VDC electrical power subsystem shall be OPERABLE to support one train of the DC Electrical Power Distribution System required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies in the containment, auxiliary building, and Unit 2 containment.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Required DC electrical power subsystem inoperable.	A.1	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	A.2	Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>		
	A.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<u>AND</u>		
	A.4	Initiate action to restore required DC electrical power subsystem to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	-----NOTE----- The following SR is not required to be performed: 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 Train A, Train B, Train N, and Unit 2 Train A and Train B batteries shall be within limits.

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

ACTIONS

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

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
-----NOTE----- Required Action C.2 shall be completed if electrolyte level was below the top of plates.	-----NOTE----- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates.	
C. One or more batteries with one or more cells electrolyte level less than minimum established design limits.	C.1 Restore electrolyte level to above top of plates.	8 hours
	AND	
	C.2 Verify no evidence of leakage.	12 hours
	AND	
	C.3 Restore electrolyte level to greater than or equal to minimum established design limits.	31 days
D. One or more batteries 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. Batteries in redundant trains with battery parameters not within limits.	E.1 Restore battery parameters for battery in one train to within limits.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> One or more batteries with one or more battery cells float voltage < 2.07 V and float current > 2 amps. <u>OR</u> SR 3.8.6.6 not met.	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 voltage is ≥ 2.07 V.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 voltage is $\geq$ 2.07 V.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.6	------------------------------NOTE------------------------------ This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the unit is maintained or enhanced. 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 <u>AND</u> 12 months when battery shows degradation, or has reached 85% of the expected life with capacity < 100% of manufacturer's rating <u>AND</u> 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 Train A and Train B inverters shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One inverter inoperable.	A.1	------------NOTE------------ Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any 120 VAC vital bus de-energized. -------------------------------- Restore inverter to OPERABLE status.	24 hours
B. Two inverters in one train inoperable.	B.1	Restore one inverter to OPERABLE status.	6 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 3.8.7.1	Verify, for each inverter, correct inverter voltage, frequency, and alignment to the associated 120 VAC vital bus.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 Two inverters shall be OPERABLE to support one train of the 120 VAC vital electrical distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies in the containment, auxiliary building, and Unit 2 containment.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable.	A.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<u>AND</u>	
	A.4 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify, for each required inverter, correct inverter voltage, frequency, and alignment to the associated 120 VAC vital bus.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 The following electrical power distribution subsystems shall be OPERABLE:

a. Train A and Train B AC electrical power distribution subsystems;

b. Train A and Train B 120 VAC vital bus electrical power distribution subsystems;

c. Train A and Train B 250 VDC electrical power distribution subsystems;

d. Train N 250 VDC electrical power distribution subsystem; and

e. The Unit 2 Train A and Train B AC electrical power distribution subsystem(s) and Train A and Train B 250 VDC electrical power distribution subsystem(s) required to support the equipment required to be OPERABLE by LCO 3.7.8, "Essential Service Water (ESW) System."

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

-----NOTE-----
Train N 250 VDC electrical power distribution subsystem is not required to be OPERABLE in MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both Train A and Train B AC electrical power distribution subsystems inoperable.	----------------NOTE---------------- Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC sources made inoperable by inoperable power distribution subsystems. ------------------------------------	
	A.1 Restore Train A and Train B AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours <u>AND</u> 16 hours from discovery of failure to meet LCO 3.8.9.a, b, or c
B. One or both Train A and Train B 120 VAC vital bus electrical power distribution subsystems inoperable.	B.1 Restore Train A and Train B 120 VAC vital bus electrical power distribution subsystem(s) to OPERABLE status.	8 hours <u>AND</u> 16 hours from discovery of failure to meet LCO 3.8.9.a, b, or c
C. One Train A or Train B 250 VDC electrical power distribution subsystem inoperable.	C.1 Restore Train A or Train B 250 VDC electrical power distribution subsystem to OPERABLE status.	2 hours <u>AND</u> 16 hours from discovery of failure to meet LCO 3.8.9.a, b, or c

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	D.2	Be in MODE 5.	36 hours
E. Required Train N 250 VDC electrical power distribution subsystem inoperable.	E.1	Declare the turbine driven auxiliary feedwater train inoperable.	Immediately
F. One or more required Unit 2 electrical distribution subsystems inoperable.	F.1	Declare associated ESW train(s) inoperable.	Immediately
G. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.	G.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments and voltage to required AC, DC, and 120 VAC vital 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 portions of the AC, DC, and 120 VAC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies in the containment, auxiliary building, and Unit 2 containment.

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.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.4 Initiate actions to restore required AC, DC, and 120 VAC vital bus electrical power distribution subsystems to OPERABLE status. <u>AND</u> A.2.5 Declare associated required residual heat removal subsystem(s) inoperable and not in operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, DC, and 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 (RCS), the refueling canal, and the refueling cavity shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.9.1.2	Verify boron concentration of refueling canal and refueling cavity is within the limit specified in the COLR.	Once within 72 hours prior to connecting the refueling canal and refueling cavity to the RCS

3.9 REFUELING OPERATIONS

3.9.2 Nuclear Instrumentation

LCO 3.9.2 Two source range neutron flux monitors shall be OPERABLE.

AND

One source range audible count rate circuit shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required source range neutron flux monitor inoperable.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1, "Boron Concentration."	Immediately
B. Two required source range neutron flux monitors inoperable.	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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required source range audible count rate circuit inoperable.	C.1	Initiate action to isolate unborated water sources.	Immediately

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 Containment Penetrations

LCO 3.9.3 The containment penetrations shall be in the following status:

a. The equipment hatch is closed and held in place by four bolts;

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

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

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

   2. Capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System.

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

APPLICABILITY: During movement of irradiated fuel assemblies within containment.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify each required containment penetration is in the required status.	In accordance with the Surveillance Frequency Control Program
SR 3.9.3.2	-------------------------------NOTE------------------------------ Not required to be met for containment purge supply and exhaust valve(s) in penetrations closed to comply with LCO 3.9.3.c.1. --- Verify each required containment purge supply and exhaust valve actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.4 *Residual Heat Removal (RHR) and Coolant Circulation - High Water Level*

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

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

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RHR loop requirements not met.	A.1	Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
	<u>AND</u>		
	A.2	Suspend loading irradiated fuel assemblies in the core.	Immediately
	<u>AND</u>		
	A.3	Initiate action to satisfy RHR loop requirements.	Immediately
	<u>AND</u>		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.4 Close equipment hatch and secure with four bolts.	4 hours
	AND	
	A.5 Close one door in each air lock.	4 hours
	AND	
	A.6 Verify each penetration providing direct access from the containment atmosphere to the outside atmosphere is either closed with a manual or automatic isolation valve, blind flange, or equivalent, or is capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 2000 gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.9.4.2	Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.5 Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level

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

---NOTES---

1. All RHR pumps may be removed from operation for ≤ 15 minutes when switching from one loop to another provided:

   a. The core outlet temperature is maintained at least 10°F below saturation temperature;

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

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

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

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Less than the required number of RHR loops OPERABLE.	A.1	Initiate action to restore required RHR loops to OPERABLE status.	Immediately
	<u>OR</u>		
	A.2	Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. No RHR loop in operation.	B.1	Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1, "Boron Concentration."	Immediately
	AND		
	B.2	Initiate action to restore one RHR loop to operation.	Immediately
	AND		
	B.3	Close equipment hatch and secure with four bolts.	4 hours
	AND		
	B.4	Close one door in each air lock.	4 hours
	AND		
	B.5	Verify each penetration providing direct access from the containment atmosphere to the outside atmosphere is either closed with a manual or automatic isolation valve, blind flange, or equivalent, or is capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 2000 gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.2	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after a required RHR pump is not in operation. --- Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.3	Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.6 Refueling Cavity Water Level

LCO 3.9.6 Refueling cavity water level shall be maintained ≥ 23 ft above the top of reactor vessel flange.

APPLICABILITY: During movement of irradiated fuel assemblies within containment.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify refueling cavity water level is ≥ 23 ft above the top of reactor vessel flange.	In accordance with the Surveillance Frequency Control Program

4.0 DESIGN FEATURES

4.1 Site Location

4.1.1 Site and Exclusion Area Boundaries

The site area and exclusion area boundaries are as shown in Figure 4.1-1.

4.1.2 Low Population Zone

The low population zone is all the land within a circle centered on the reactor containment structures and a radius of 2 miles.

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain 193 fuel assemblies. Each assembly shall consist of a matrix of Zircaloy, ZIRLO™, or Optimized ZIRLO™ fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.

4.2.2 Control Rod Assemblies

The reactor core shall contain 53 full length control rod assemblies. The control material shall be silver indium cadmium, as approved by the NRC.

4.3 Fuel Storage

4.3.1 Criticality

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

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

b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.7.2 of the UFSAR;

c. A nominal 8.97 inch center to center distance between fuel assemblies placed in the fuel storage racks;

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

d. New or partially spent fuel assemblies with any discharge burnup may be allowed unrestricted storage in Region 1 of Figure 4.3-1 or Figure 4.3-2; and

e. Partially spent fuel assemblies stored in Regions 2 and 3 of Figure 4.3-1 or Figure 4.3-2 meeting the initial enrichment and burnup requirements of LCO 3.7.16, "Spent Fuel Pool Storage."

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

a. Westinghouse fuel assemblies having either a maximum U-235 enrichment of 4.55 weight percent, or a maximum U-235 enrichment within the Acceptable Region of Figure 4.3-3 not to exceed 4.95 weight percent. Linear interpolation of the Boron-10 integral fuel burnable absorber (IFBA) loading curves between 1.0X and 1.5X and between 1.5X and 2.0X is acceptable;

b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.7 of the UFSAR;

c. $k_{eff} \leq 0.98$ if moderated by aqueous foam, which includes an allowance for uncertainties as described in Section 9.7 of the UFSAR; and

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

4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 629 ft 4 inches.

4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 3613 fuel assemblies.

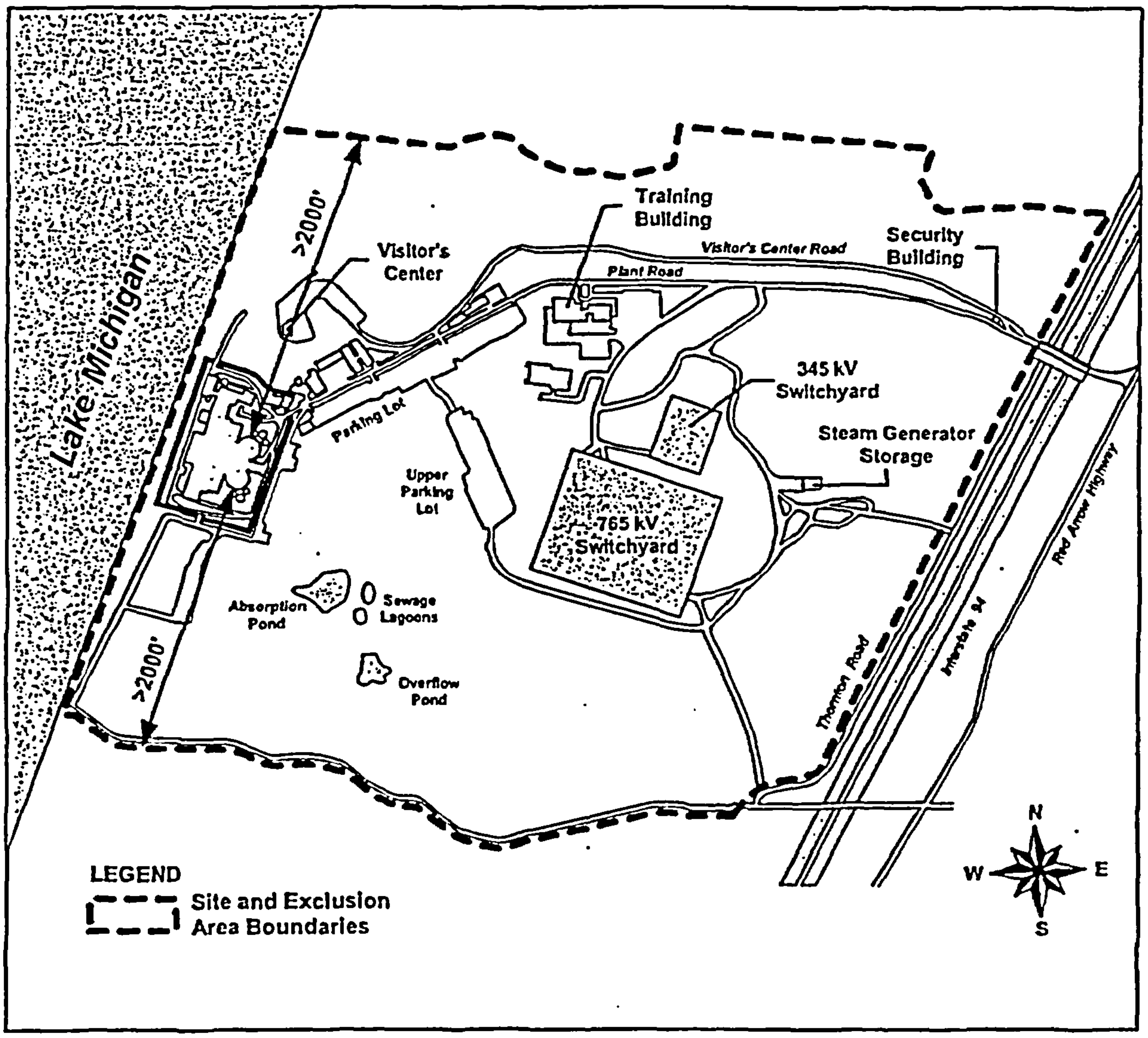
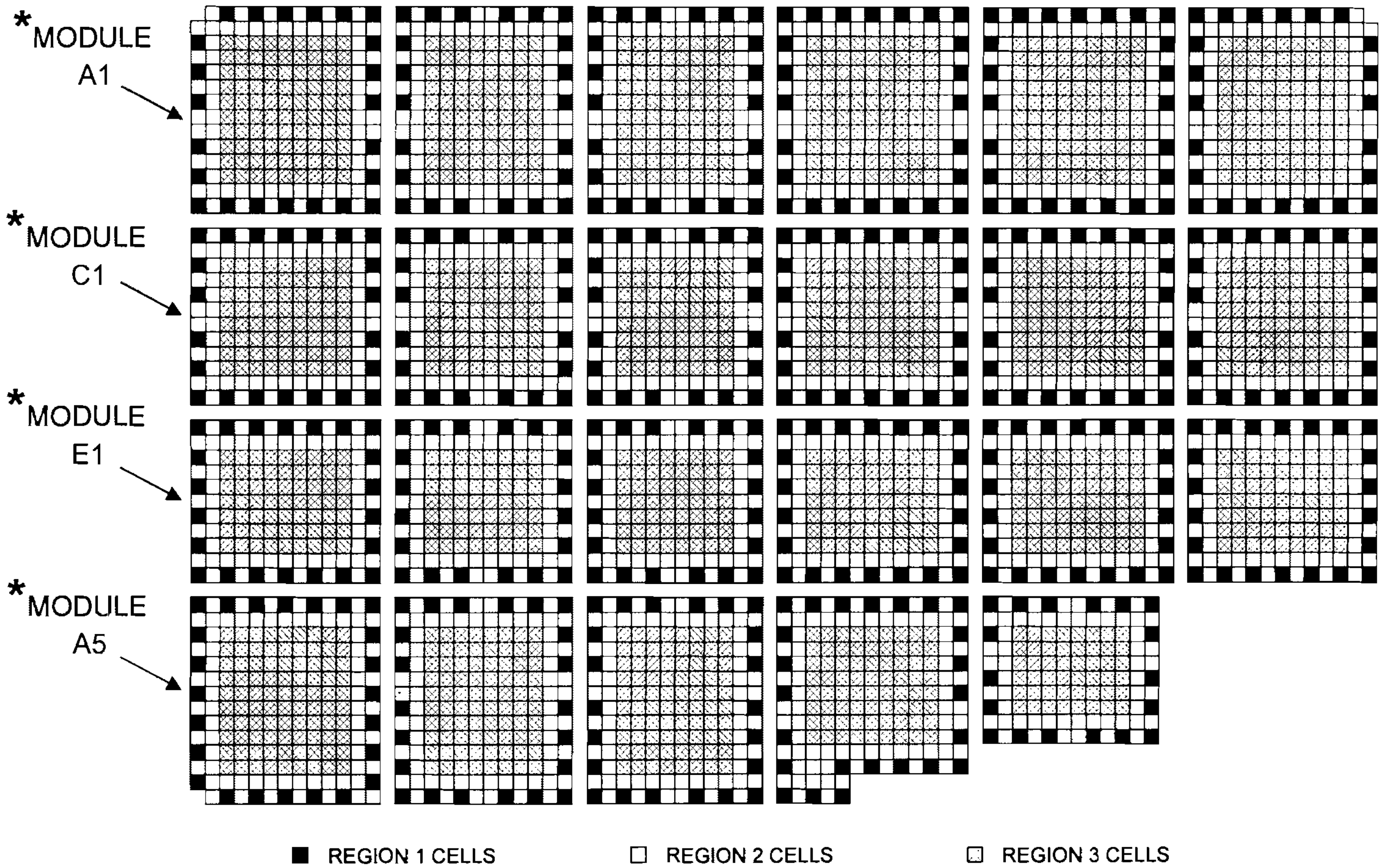
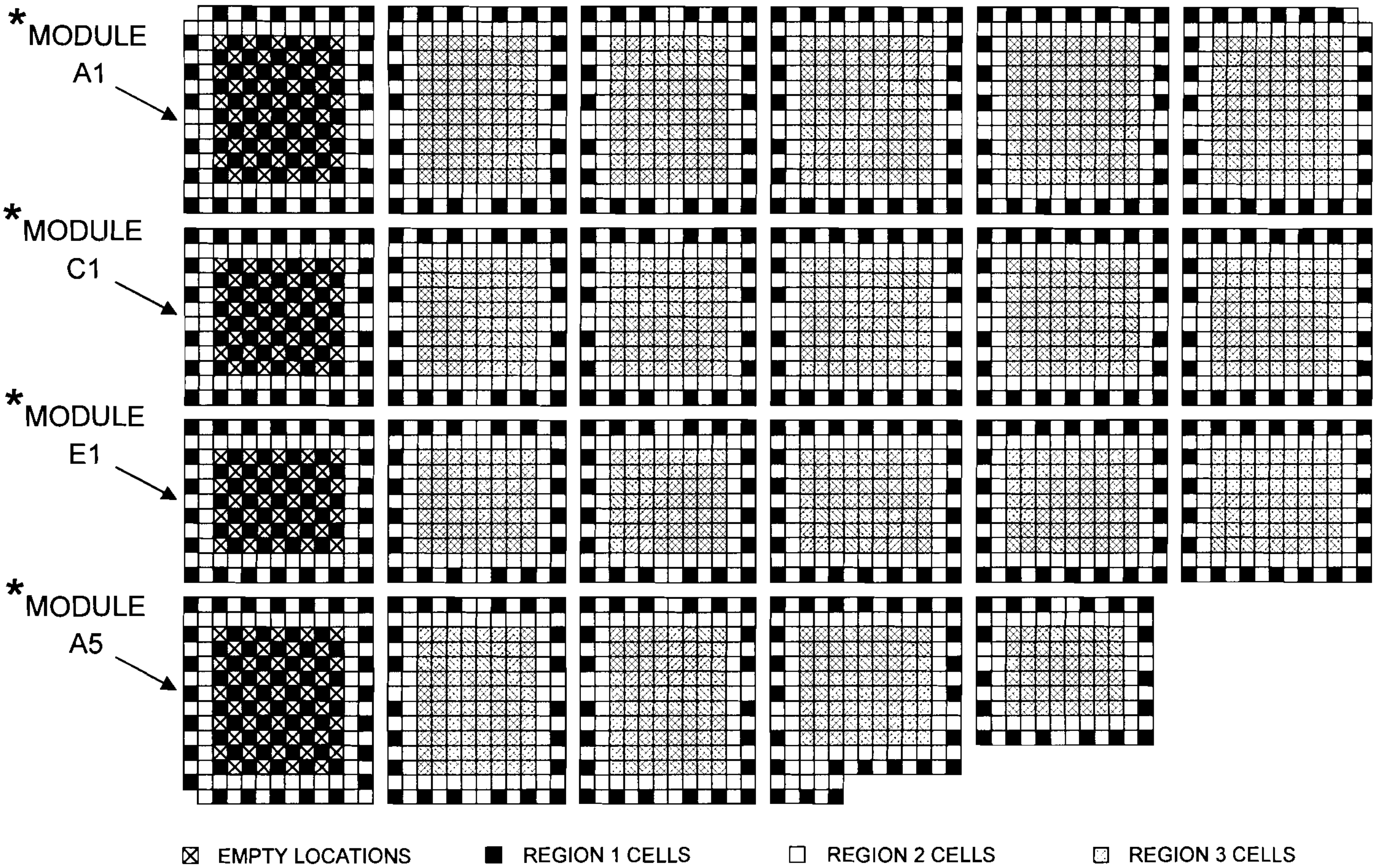


Figure 4.1-1 (page 1 of 1)
Site and Exclusion Area Boundaries



*The storage pattern for any of these individual modules may be as shown in this figure or Figure 4.3-2.

Figure 4.3-1 (page 1 of 1)
Normal Storage Pattern (Mixed Three Zone)



*The storage pattern for any of these individual modules may be as shown in this figure or Figure 4.3-1.

Figure 4.3-2 (page 1 of 1)
Interim Storage Pattern (Checkerboard)

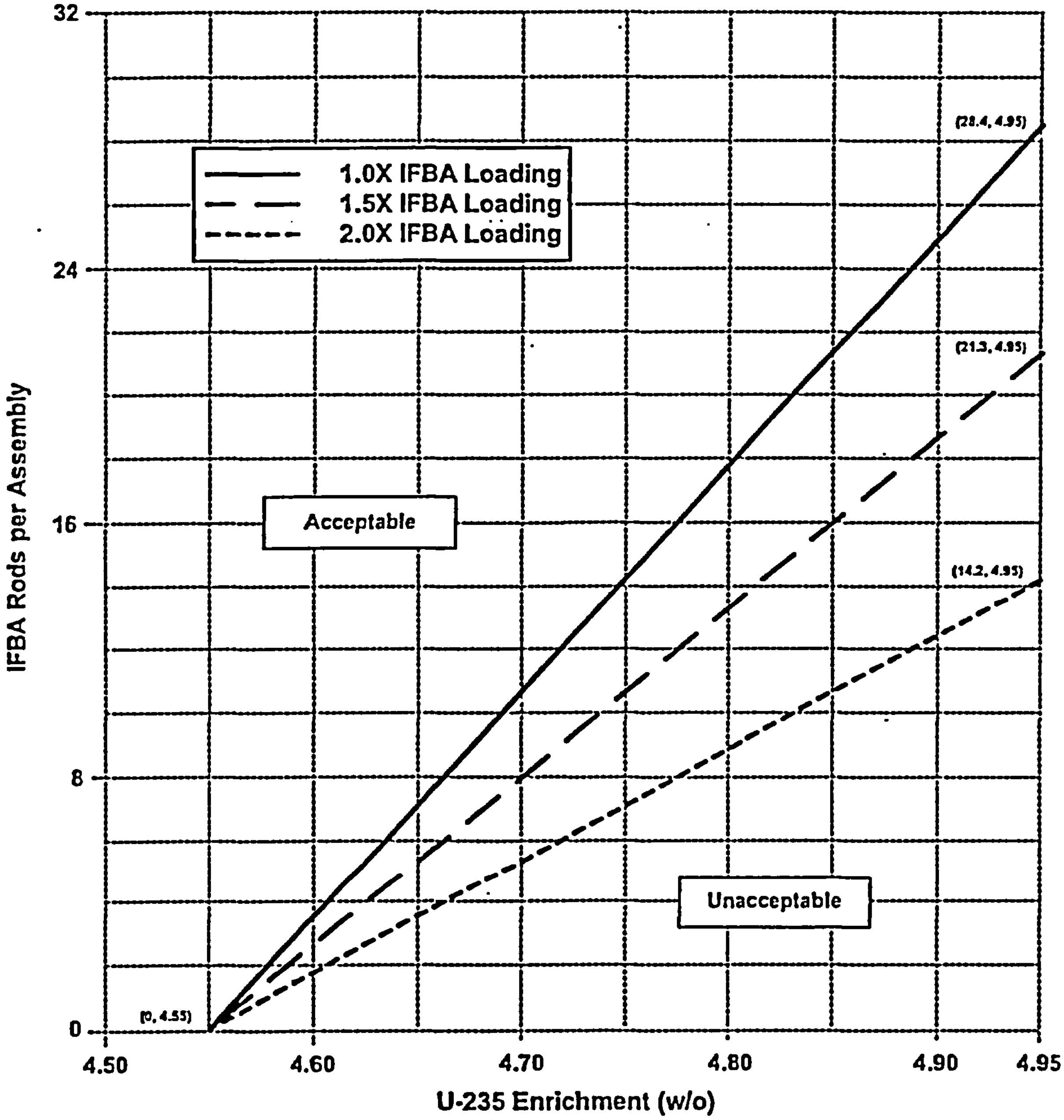


Figure 4.3-3 (page 1 of 1)
New Fuel Storage Rack Integral Fuel Burnable Absorber (IFBA) Requirements

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

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

The plant manager or his designee shall approve, prior to implementation, each proposed test, experiment, or modification to systems or equipment that affects nuclear safety.

5.1.2 The shift manager shall be responsible for the control room command function. During any absence of the shift manager from the control room complex while the unit is in MODE 1, 2, 3, or 4, an individual with an active Senior Operator license shall be designated to assume the control room command function. During any absence of the shift manager from the control room complex while the unit is in MODE 5 or 6, an individual with an active Senior Operator license or Operator license shall be designated to assume the control room command function.

5.0 ADMINISTRATIVE CONTROLS

5.2 Organization

5.2.1 <u>Onsite and Offsite Organizations</u>

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

a. Lines of authority, responsibility, and communication shall be defined and established throughout highest management levels, intermediate levels, and all operating organization positions. These relationships shall be documented and updated, as appropriate, in organization charts. These requirements, including the plant-specific titles of those personnel fulfilling the responsibilities of the positions delineated in these Technical Specifications, shall be documented in the UFSAR.

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

c. A specified corporate officer shall have corporate responsibility for overall plant nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the plant to ensure nuclear safety.

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 <u>Unit Staff</u>

The unit staff organization shall include the following:

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

5.2 Organization

5.2.2 Unit Staff (continued)

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

c. A radiation protection technician shall be on site when fuel is in the reactor. The position may be vacant for not more than 2 hours, in order to provide for unexpected absence, provided immediate action is taken to fill the required position;

d. DELETED

e. The operations manager must hold or have held a Senior Operator license at Cook Nuclear Plant or a similar reactor, or have been certified for equivalent Senior Operator knowledge. If the operations manager does not hold an Senior Operator license, then a line operations middle manager shall hold a Senior Operator license for the purposes of directing operational activities; and

f. In MODE 1, 2, 3, or 4, an individual (shared with Unit 2) shall provide advisory technical support to the unit operations shift crew in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit. This individual shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift.

5.0 ADMINISTRATIVE CONTROLS

5.3 Unit Staff Qualifications

5.3.1 Each member of the unit staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions, except for the radiation protection manager and the operations manager. The radiation protection manager shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975. The operations manager shall be qualified as required by Specification 5.2.2.e.

5.3.2 For the purpose of 10 CFR 55.4, a licensed Senior Operator and a licensed Operator 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 ADMINISTRATIVE CONTROLS

5.4 Procedures

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

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

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

c. Quality assurance for effluent and environmental monitoring;

d. Fire Protection Program implementation; and

e. All programs specified in Specification 5.5.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

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

5.5.1 Offsite Dose Calculation Manual (ODCM)

a. The ODCM shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the radiological environmental monitoring program; and

b. The ODCM shall also contain the radioactive effluent controls and radiological environmental monitoring activities, and descriptions of the information that should be included in the Annual Radiological Environmental Operating and Radioactive Effluent Release Reports required by Specification 5.6.2 and Specification 5.6.3.

c. Licensee initiated changes to the ODCM:

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

   a) Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s); and

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

2. Shall become effective after the approval of the plant manager; and

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

5.5 Programs and Manuals

5.5.2 Leakage Monitoring Program

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include Safety Injection System, Chemical and Volume Control System, Residual Heat Removal System, Containment Spray System, Liquid Waste Disposal System, Waste Gas System, Post-Accident Containment Hydrogen Monitoring System, Post-Accident Sampling System, and the boron injection tank injection flowpath of the Centrifugal Charging System. The program shall include the following:

a. Preventive maintenance and periodic visual inspection requirements; and

b. Integrated leak test requirements for each system at least once per 24 months.

The provisions of SR 3.0.2 are applicable.

5.5.3 Radioactive Effluent Controls Program

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

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

b. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to the concentration values in Appendix B, Table 2, Column 2 to 10 CFR 20.1001-20.2402;

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

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

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

5.5 Programs and Manuals

5.5.3 Radioactive Effluent Controls Program (continued)

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

g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas beyond the site boundary shall be in accordance with the following:

   1. For noble gases: a dose rate ≤ 500 mrem/yr to the whole body and a dose rate ≤ 3000 mrem/yr to the skin; and

   2. For iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days: a dose rate ≤ 1500 mrem/yr to any organ;

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

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

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

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

5.5.4 Component Cyclic or Transient Limits

This program provides controls to track the UFSAR, Section 4.1, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5 Programs and Manuals

5.5.5 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel.

A qualified in-place UT examination over the volume from the inner bore of the flywheel to the circle one-half of the outer radius or a surface examination (magnetic particle testing or penetrant testing, or combination of the two tests) of exposed surfaces of the removed flywheels shall be conducted at an interval not to exceed 20 years.

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

5.5.6 DELETED

5.5 Programs and Manuals

5.5.7 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 0.25 gpm for an individual SG, for a total leakage of 1 gpm for all SGs.

5.5 Programs and Manuals

5.5.7 Steam Generator (SG) Program (continued)

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

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.

5.5 Programs and Manuals

5.5.8 Secondary Water Chemistry Program

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

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

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

c. Identification of process sampling points;

d. Procedures for the recording and management of data;

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

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

5.5.9 Ventilation Filter Testing Program (VFTP)

The VFTP shall establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems. Tests described in Specifications 5.5.9.a and 5.5.9.b shall be performed once per 24 months; after each complete or partial replacement of the HEPA filter bank or charcoal adsorber bank; after any structural maintenance on the HEPA filter bank or charcoal adsorber bank housing; and, following painting, fire, or chemical release in any ventilation zone communicating with the subsystem while it is in operation that could adversely affect the filter bank or charcoal adsorber capability.

Tests described in Specification 5.5.9.c shall be performed once per 24 months; after 720 hours of adsorber operation; after any structural maintenance on the HEPA filter bank or charcoal adsorber bank housing; and, following painting, fire, or chemical release in any ventilation zone communicating with the subsystem while it is in operation that could adversely affect the charcoal adsorber capability.

Tests described in Specification 5.5.9.d shall be performed once per 24 months.

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

5.5 Programs and Manuals

5.5.9 Ventilation Filter Testing Program (VFTP) (continued)

a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a removal efficiency of > 99% of the dioctyl phthalate (DOP) when tested in accordance with the standard and at the system flowrate specified below:

ESF Ventilation System	ANSI Standard	Flowrate (cfm)
CREV System	N510-1975	≥ 5,400 and ≤ 6,600
ESF Ventilation System	N510-1980	≥ 22,500 and ≤ 27,500
FHAEV System	N510-1980	≥ 27,000 and ≤ 33,000

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a removal efficiency of ≥ 99% of a halogenated hydrocarbon refrigerant test gas when tested in accordance with the standard and at the system flowrate specified below:

ESF Ventilation System	ANSI Standard	Flowrate (cfm)
CREV System	N510-1975	≥ 5,400 and ≤ 6,600
ESF Ventilation System	N510-1980	≥ 22,500 and ≤ 27,500
FHAEV System	N510-1980	≥ 27,000 and ≤ 33,000

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained from either at least one test canister or at least two carbon samples removed from one of the charcoal adsorbers, shows the methyl iodide penetration less than or equal to the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity (RH) specified below:

5.5 Programs and Manuals

5.5.9 Ventilation Filter Testing Program (VFTP) (continued)

ESF Ventilation System	Face Velocity (fpm)	Penetration (%)	RH (%)
CREV System	NA	2.5	95
ESF Ventilation System	45.5	5	95
FHAEV System	46.8	5	95

In addition, the carbon samples not obtained from test canisters shall be prepared by either:

1. Emptying one entire bed from a removed adsorber tray, mixing the adsorbent thoroughly, and obtaining samples at least two inches in diameter and with a length equal to the thickness of the bed; or

2. Emptying a longitudinal sample from an adsorber tray, mixing the adsorbent thoroughly, and obtaining samples at least two inches in diameter and with a length equal to the thickness of the bed.

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

ESF Ventilation System	Delta P (inches water gauge)	Flowrate (cfm)
CREV System	4	≥ 5,400 and ≤ 6,600
ESF Ventilation System	4	≥ 22,500 and ≤ 27,500
FHAEV System	4	≥ 27,000 and ≤ 33,000

5.5 Programs and Manuals

5.5.10 Explosive Gas and Storage Tank Radioactivity Monitoring Program

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

The program shall include:

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

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

c. A Surveillance program to ensure that the quantity of radioactivity contained in all outdoor temporary liquid storage tanks that are not surrounded by liners, dikes, or walls capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is less than the amount that would result in concentrations less than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

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

5.5.11 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, an absolute specific gravity, or a specific gravity within limits;

5.5 Programs and Manuals

5.5.11 Diesel Fuel Oil Testing Program (continued)

2. A flash point within limits and, if the gravity was not determined by comparison with the supplier's certification, a kinematic or saybolt viscosity within limits; and

3. A clear and bright appearance with proper color;

b. Within 31 days following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in Specification 5.5.11.a above, are within limits; and

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

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

5.5.12 Technical Specifications (TS) Bases Control Program

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

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

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

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

2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

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

d. Proposed changes that meet the criteria of Specification 5.5.12.b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with required UFSAR updates submitted pursuant to 10 CFR 50.71.

5.5 Programs and Manuals

5.5.13 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 actions may be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6.

a. The SFDP shall contain the following:

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

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

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

4. Other appropriate limitations and remedial or compensatory actions.

b. A loss of safety function exists when, assuming no concurrent single failure, no concurrent loss of offsite power, or no concurrent loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

1. A required system redundant to the system(s) supported by the inoperable support system is also inoperable;

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

3. A required system redundant to the support system(s) for the supported systems described in Specifications 5.5.13.b.1 and 5.5.13.b.2 above is also inoperable.

c. The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5 Programs and Manuals

5.5.14 Containment Leakage Rate Testing Program

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in NEI 94-01, Revision 3-A, “Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J,” dated July 2012, and Section 4.1, “Limitations and Conditions for NEI TR 94-01, Revision 2,” of the NRC Safety Evaluation Report in NEI 94-01, Revision 2-A, dated October 2008.

b. The containment design pressure is 12 psig. For the Containment Leakage Rate Testing Program, P_a is 12.0 psig.

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be 0.18% of containment air weight per day.

d. Leakage rate acceptance criteria are:

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

   2. Air lock testing acceptance criterion is overall air lock leakage rate is ≤ 0.05 L_a when tested at ≥ P_a.

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

5.5 Programs and Manuals

5.5.15 Battery Monitoring and Maintenance Program

This program provides for battery restoration and maintenance, based on the recommendations of IEEE Standard 450-2010, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed, with certain regulatory positions, in Regulatory Guide 1.129, Revision 3, or of the battery manufacturer including the following:

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

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

5.5.16 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 (CREV) System, 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.

The following is an exception to Section C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

The appropriate application of ASTM E741-00 required by C.1.1 may include minor exceptions to the test methodology. These exceptions shall be documented in the test report.

5.5 Programs and Manuals

5.5.16 Control Room Envelope Habitability Program (continued)

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 CREV System, operating at the flow rate required by the VFTP, at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the periodic assessment of the CRE boundary.

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 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.

5.5.17 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 of 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 Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, “Risk-Informed Method of Control of Surveillance Frequencies,” Revision 1.

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

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

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

5.6.1 DELETED

5.6.2 Annual Radiological Environmental Operating Report

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

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

5.6 Reporting Requirements

5.6.2 Annual Radiological Environmental Operating Report (continued)

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

5.6.3 Radioactive Effluent Release Report

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

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. 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

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

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

   1. SL 2.1.1, "Reactor Core Safety Limits";

   2. LCO 3.1.1, "SHUTDOWN MARGIN (SDM)";

   3. LCO 3.1.3, "Moderator Temperature Coefficient (MTC)";

   4. LCO 3.1.5, "Shutdown Bank Insertion Limits";

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

5. LCO 3.1.6, "Control Bank Insertion Limits";

6. LCO 3.2.1, "Heat Flux Hot Channel Factor ($F_Q(Z)$)";

7. LCO 3.2.2, "Nuclear Enthalpy Rise Hot Channel Factor ($F^N_{\Delta H}$)";

8. LCO 3.2.3, "AXIAL FLUX DIFFERENCE (AFD)";

9. LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation," Functions 6 and 7 (Overtemperature ΔT and Overpower ΔT, respectively) Allowable Value parameter values;

10. LCO 3.4.1, "RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits"; and

11. LCO 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:

1. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," (Westinghouse Proprietary);

2. WCAP-8385, "Power Distribution Control and Load Following Procedures - Topical Report," (Westinghouse Proprietary);

3. WCAP-10216-P-A, "Relaxation of Constant Axial Offset Control/F_Q Surveillance Technical Specification," (Westinghouse Proprietary);

4. Plant-specific adaptation of WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," (Westinghouse Proprietary);

5. WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report," (Westinghouse Proprietary);

6. WCAP-8745-P-A, "Design Bases for the Thermal Overpower ΔT and Thermal Overtemperature ΔT Trip Functions," (Westinghouse Proprietary);

7. WCAP-13749-P-A, "Safety Evaluation Supporting the Conditional Exemption of the Most Negative EOL Moderator Temperature Coefficient Measurement," (Westinghouse Proprietary); and

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

8. WCAP-12610-P-A & CENPD-404-P-A, Addendum 1-A, “Optimized ZIRLO^{TM},” July 2006 (Westinghouse Proprietary).

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 Post Accident Monitoring Report

When a report is required by Condition B or G of LCO 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.7 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 5.5.7, 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.

5.6 Reporting Requirements

5.6.7 Steam Generator Tube Inspection Report (continued)

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;

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 Each high radiation area in which radiation levels from radiation sources external to the body could result in an individual receiving a dose equivalent in excess of 100 mrem but less than or equal to 1000 mrem in 1 hour at 30 cm from the radiation source or 30 cm from any surface that the radiation penetrates, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiological Work Permit (RWP). Radiation protection personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by at least one of the following:

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

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of it; or

c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by a radiation protection manager in the RWP.

5.7.2 In addition to the requirements of Specification 5.7.1 above, for each high radiation area in which the radiation level at 30 cm from the radiation source or 30 cm from any surface that the radiation penetrates is greater than 1000 mrem in 1 hour, locked doors shall be provided, when possible, to prevent unauthorized entry into such areas and the keys shall be maintained under administrative control of the shift manager on duty or a radiation protection manager. Doors shall remain locked except during periods of access by personnel under an approved RWP that shall specify the dose rate levels in the immediate work areas. In the event that it is not possible or practicable to provide locked doors due to area size or configuration, the area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device.

APPENDIX B

DONALD C. COOK NUCLEAR PLANT

UNITS 1 and 2

BERRIEN COUNTY, MICHIGAN

DOCKET NUMBERS 50-315 and 50-316

PART II – NONRADIOLOGICAL

ENVIRONMENTAL PROTECTION PLAN

DONALD C. COOK NUCLEAR PLANT
UNITS 1 and 2

ENVIRONMENTAL PROTECTION PLAN
(NON-RADIOLOGICAL)

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1.0 OBJECTIVES OF THE ENVIRONMENTAL PROTECTION PLAN

The Non-Radiological Environmental Protection Plan (EPP) is to provide for protection of environmental values during operation of the nuclear facility. The principle objectives of the EPP are as follows:

(1) Verify that the station is operated in an environmentally acceptable manner, as established by the Final Environmental Statement (FES) – Operating License Stage (FES-OL) and other NRC environmental impact assessments.

(2) Coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection.

(3) Keep NRC informed of the environmental effects of facility construction and operation and of actions taken to control those effects.

Environmental concerns identified in the FES-OL which related to water quality matters are regulated by way of the licensee's NPDES permit.

2.0 ENVIRONMENTAL PROTECTION ISSUES

In the FES Operating License dated August 1973, the Staff considered the environmental impacts associated with the operation of the Donald C. Cook Nuclear Plant (CNP). Certain environmental issues were identified which required study or license conditions to resolve and to assure adequate protection of the environment. The Appendix B Environmental Technical Specifications (ETS) accompanying the license included monitoring programs and other requirements to permit resolution of the issues. Requirements remaining in the ETS were incorporated into this EPP and subsequently amended. Requirements in effect are:

2.1 Aquatic Issues

Effluent limitations and monitoring requirements are contained in the effective NPDES or Groundwater permits issued by the federal or state permitting authority. The NRC will rely on these agencies for regulation of these matters as they involve water quality and aquatic biota.

2.2 Terrestrial Issues

The use of herbicides, if such are used for maintenance of transmission rights-of-way, shall be controlled consistent with regulatory requirements. The requirements with regard to this terrestrial issue are specified in Subsection 4.2.

The operation of specified stationary sources of air pollutants requires that Indiana Michigan Power Company obtain a Renewable Operating Permit (ROP) pursuant to Title V of the federal Clean Air Act of 1990 and Michigan's Administrative Rules for Air Pollution Control pursuant to Section 5506(1) of the Natural Resources and Environmental Protection Act, Act 451 of 1994. Specified stationary sources subject to the ROP program are defined by the applicable Administrative Rule and include sources such as: diesel generators, stationary engine-driven pumps, and building heating boilers. Related effluent monitoring and limitations are contained in the effective ROP (Title V Permit) issued by the permitting authority.

3.0 CONSISTENCY REQUIREMENTS

3.1 Plant Design and Operation

This licensee may make changes in station design or operation, or perform tests or experiments affecting the environment provided such changes, tests or experiments do not involve an unreviewed environmental question, and do not involve a change in the EPP.[1] Changes in plant design or operation or performance of tests or experiments which do not affect the environment are not subject to the requirements of this EPP. Activities governed by Section 3.3 are not subject to the requirements of this section.

Before engaging in unauthorized construction or operational activities which may significantly affect the environment, the licensee shall prepare and record an environmental evaluation of such activity. Activities are excluded from this requirement if all measurable non-radiological effects are confined to the on-site areas previously disturbed during site preparation and plant construction. When the evaluation indicates that such activity involves an unreviewed environmental question, the licensee shall provide a written evaluation of such activities and obtain prior approval from the NRC. When such activity involves a change in the EPP, such activity and change to the EPP may be implemented only in accordance with an appropriate license amendment as set forth in Section 5.3.

A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if it concerns (1) a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the FES as modified by staff's testimony to the Atomic Safety and Licensing Board, supplements to the FES, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board; or (2) a significant change in effluents or power level [in accordance with 10 CFR Part 51.5(b)(2)] or (3) a matter not previously reviewed and evaluated in the documents specified in (1) of this Subsection, which may have a significant adverse environmental impact.

The licensee shall maintain records of changes in facility design or operation and of tests and experiments carried out pursuant to this Subsection. These records shall include a written evaluation which provide bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question nor constitute a decrease in the effectiveness of this EPP to meet the objectives specified in Section 1.0.

[1] This provision does not relieve the licensee of the requirements of 10 CFR 50.59.

3.2 Reporting Related to the NPDES Permits and State Certifications

The NRC shall be provided with a copy of the current NPDES permit or state certification within 30 days of approval. Changes to the NPDES permit or state certification shall be reported to the NRC within 30 days of the date the change is approved.

3.3 Changes Required for Compliance with Other Environmental Regulations

Changes in plant design or operation and performance of tests or experiments that are either regulated or mandated by other federal, state, or local environmental regulations are not subject to the requirements of Section 3.1. However, if any environmental impacts of a change are not evaluated under other federal, state, or local environmental regulations, then those impacts are subject to the requirements of Section 3.1.

3.4 Reporting Related to the Renewable Operating Permit

The NRC shall be provided with a copy of the current ROP within 30 days of approval.

4.0 ENVIRONMENTAL CONDITIONS

4.1 Unusual or Important Environmental Events

Any occurrence of an unusual or important event that indicates or could result in significant environmental impact related to plant operation shall be recorded and promptly reported to the NRC Operations Center within 24 hours followed by a written report per Subsection 5.4.2. If an event is reportable under 10 CFR 50.72, then a duplicate immediate report under this Subsection is not required. However, a written report is required in accordance with Section 5.4.2.

No routine monitoring programs are required to implement this condition.

4.2 Environmental Monitoring

4.2.1 Herbicide Application

The use of herbicides within rights-of-way within the Plant site shall conform to the approved use of selected herbicides as registered by the Environmental Protection Agency and approved by State authorities and applied as directed by said authorities.

5.0 ADMINISTRATIVE PROCEDURES

5.1 Review and Audit

The licensee shall provide for review and audit of compliance with the EPP. The audits shall be conducted independently of the individual or groups responsible for performing the specific activity. A description of the organization structure utilized to achieve the independent review and audit function and results of the audit activities shall be maintained and made available for inspection.

5.2 Records Retention

Records associated with this EPP shall be made and retained in a manner convenient for review and inspection. These records shall be made available to NRC on request.

Records of modifications to plant structures, systems and components determined to potentially affect the continued protection of the environment shall be retained until the date of the termination of the Operating License. All other records and procedures relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

5.3 Changes in Environmental Protection Plan

Request of change in the EPP shall include an assessment of the environmental impact of the proposed change and a supporting justification. Implementation of such changes in the EPP shall not commence prior to NRC approval of the proposed changes in the form of a license amendment incorporating the appropriate revision to the EPP.

5.4 Plant Reporting Requirements

5.4.1 Deleted

5.4.2 Non-routine Reports

A written report shall be submitted to the NRC within 30 days of occurrence of non-routine event. The report shall (a) describe, analyze and evaluate the event, including extent and magnitude of the impact and plant operating characteristics, (b) describe the probable cause of the event, (c) indicate the action taken to correct the reported event, (d) indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar components or systems, and (e) indicate the agencies notified and their preliminary responses.

Events reportable under this subsection which also require reports to other Federal, State or local agencies shall be reported in accordance with those reporting requirements in lieu of the requirements of this subsection. The NRC shall be provided a copy of such report at the same time it is submitted to the other agency.