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

VISTRA OPERATIONS COMPANY LLC

ENERGY HARBOR NUCLEAR GENERATION LLC

DOCKET NO. 50-334

BEAVER VALLEY POWER STATION, UNIT NO. 1

RENEWED FACILITY OPERATING LICENSE

License No. DPR-66

1. The Nuclear Regulatory Commission (the Commission) having found that:

   A. The application to renew Facility Operating License No. DPR-66 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I, and all required notifications to other agencies or bodies have been duly made;

   B. Construction of the Beaver Valley Power Station, Unit No. 1 (facility), has been substantially completed in conformity with Construction Permit No. CPPR-75 and the application, as amended, the provisions of the Act and the rules and regulations of the Commission;

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

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

   E. Vistra Operations Company LLC is technically qualified and the licensees* are financially qualified to engage in the activities authorized by this renewed operating license in accordance with the rules and regulations of the Commission;

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

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* Vistra Operations Company LLC is authorized to act as agent for Energy Harbor Nuclear Generation LLC (collectively, the licensees) and has exclusive responsibility and control over the physical construction, operation, and maintenance of the facility.

G. 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;

H. After weighing the environmental, economic, technical and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of Renewed Facility Operating License No. DPR-66 is in accordance with 10 CFR Part 51 (formerly Appendix D of 10 CFR Part 50) of the Commission's regulations and all applicable requirements have been satisfied; and

I. The receipt, possession, and use of source, by-product, 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.

J. Actions have been identified and have been or will be taken with respect to: (1) managing the effects of aging on the functionality of structures and components that have been identified to require review under 10 CFR 54.21(a)(1) during the period of extended operation, 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 accordance with the Act and the Commission's regulations;

2. Renewed Facility Operating License No. DPR-66 is hereby issued to Vistra Operations Company LLC and Energy Harbor Nuclear Generation LLC to read as follows:

A. This renewed license applies to the Beaver Valley Power Station, Unit No. 1, a pressurized water nuclear reactor and associated equipment (the facility), owned by Energy Harbor Nuclear Generation LLC, and operated by Vistra Operations Company LLC. The facility is located in Beaver County, Pennsylvania, on the southern shore of the Ohio River, 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:

(1) Vistra Operations Company LLC, pursuant to Section 104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess, use, and operate the facility, and Energy Harbor Nuclear Generation LLC to possess the facility at the designated location in Beaver County, Pennsylvania in accordance with the procedures and limitations set forth in this renewed license;

(2) Vistra Operations Company LLC, 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) Vistra Operations Company LLC, 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) Vistra Operations Company LLC, 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 calibration or associated with radioactive apparatus or components;

(5) Vistra Operations Company LLC, pursuant to the Act and 10 CFR Parts 30, 40, 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 1: 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>

Vistra Operations Company LLC is authorized to operate the facility at a steady state reactor core power level of 2900 megawatts thermal.

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

The Technical Specifications contained in Appendix A, as revised through Amendment No. 324, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

(3) <u>Auxiliary River Water System</u>

(Deleted by Amendment No. 8)

(3) Less Than Three Loop Operation

Deleted per License Amendment No. 239.

(4) Steam Generator Water Rise Rate

Deleted per License Amendment No. 24.

(5) Fire Protection Program

Vistra Operations Company LLC 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 license amendment request dated December 23, 2013 (as supplemented by letters dated February 14, 2014; April 27, May 27, June 26, November 6, and December 21, 2015; February 24 and May 12, 2016; and January 30, April 21, June 23, August 22, October 25, and November 29, 2017), and as approved in the safety evaluation dated January 22, 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 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 a change that results in a net 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 if the change results in a risk increase less than 1E-7/yr for core damage frequency and less than 1E-8/yr for large early release frequency. 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

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)
- Passive Fire Protection Features (Section 3.11)

This license condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

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

   Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC SE dated January 22, 2018, 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) 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) above.

2. The licensee shall implement the Unit 1 modifications to its facility, as described in Attachment S, Table S-2, "Plant Modifications Committed," in FENOC letter L-17-122, dated April 21, 2017, to complete the transition to full compliance with 10 CFR 50.48(c), by the completion of the second Unit 1 refueling outage after issuance of the safety evaluation. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

3. The licensee shall implement the items listed in Attachment S, Table S-3, "Implementation Items," of FENOC letter L-17-268, dated August 22, 2017, by 12 months after issuance of the safety evaluation (with the exception of Items BV1-1633, BV1-2974, BV1-3060, BV1-3108, BV1- 3109, BV2-1580, BV2-1622, BV2-1623, and BV2-1750, which are to be completed by the end of the second Unit 2 refueling outage after issuance of the safety evaluation).

(6) Systems Integrity

Vistra Operations Company LLC shall implement a program to reduce leakage from systems outside containment that would or could contain highly radioactive fluids during a serious transient or accident to as low as practical levels. This program shall include the following:

1. Provisions establishing preventive maintenance and periodic visual inspection requirements, and
2. Integrated leak test requirements for each system at a frequency not to exceed refueling cycle intervals.

(7) Iodine Monitoring

Vistra Operations Company LLC shall implement a program which will ensure the capability to accurately determine the airborne iodine concentration in vital areas under accident conditions. This program shall include the following:

1. Training of personnel,
2. Procedures for monitoring, and
3. Provisions for maintenance of sampling and analysis equipment.

(8) Backup Method for Determining Subcooling Margin

Vistra Operations Company LLC shall implement a program which will ensure the capability to accurately monitor the Reactor Coolant System subcooling margin. This program shall include the following:

1. Training of personnel, and
2. Procedures for monitoring.

(9) Steam Generator Surveillance Interval Extension

Deleted per License Amendment No. 278.

(10) Additional Conditions

The Additional Conditions contained in Appendix C, as revised through Amendment No. 323, are hereby incorporated into this license. Vistra Operations Company LLC shall operate the facility in accordance with the Additional Conditions.

(11) Mitigation Strategy License Condition

The licensee shall 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. Protection 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 mitigation measures

(c) Actions to minimize release to include consideration of:

1. Water spray scrubbing
2. Dose to onsite responders

D. Physical Protection

Vistra Operations Company LLC shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21 is entitled: "Beaver Valley Power Station (BVPS) Physical Security Plan" submitted by letter September 9, 2004, and supplemented September 30, 2004, October 14, 2004, and May 12, 2006.

Vistra Operations Company LLC shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Beaver Valley Power Station CSP was approved by License Amendment No. 287, and amended by License Amendment No. 295.

E. All work and activities in connection with this project shall be performed pursuant to the provisions of the Commonwealth of Pennsylvania Clean Streams Acts of June 24, 1913, as amended and of June 22, 1937, as amended, and in accordance with all permits issued by the Department of Environmental Resources of the Commonwealth of Pennsylvania.

F. License Renewal Commitments – The UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), describes certain future activities to be completed prior to and/or during the period of extended operation. Vistra Operations Company LLC shall complete these activities in accordance with Appendix A of NUREG-1929, Safety Evaluation Report Related to the Beaver Valley Power Station, Units 1 and 2, dated October 2009, and Supplement 1 of NUREG-1929, dated October 2009, and shall notify the NRC in writing when activities to be completed prior to the period of extended operation are complete and can be verified by NRC inspection.

G. UFSAR Supplement Changes – The information in the UFSAR supplement, as revised, submitted pursuant to 10 CFR54.21(d), shall be incorporated into the UFSAR as required by 10 CFR 50.71(e) following the issuance of this renewed operating license. Until that update is complete, Vistra Operations Company LLC may not make changes to the information in the supplement. Following incorporation into the UFSAR, the need for prior Commission approval of any changes will be governed by 10 CFR 50.59.

H. Capsule Withdrawal Schedule – For the renewed operating license term, all capsules in the reactor vessel that are removed and tested must meet the test procedures and reporting requirements of American Society for Testing and Materials (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.

I. Containment Liner Volumetric Inspection –

a) If degradation (greater than 10 percent of the nominal thickness not attributable to fabrication/erection practices) is identified in the non-random areas examined using ultrasonic testing (UT) as described in Supplement 1 of NUREG-1929, UT examinations shall be performed at additional non-random areas, to be selected based on this operating experience. Should additional degradation be identified, additional non-random areas shall be UT examined until no further degradation (greater than 10 percent of the nominal thickness) is identified. All areas with degradation shall be reexamined over at least the next three successive inspection periods to ensure that progression of the degradation is not occurring.

b) If degradation (greater than 10 percent of the nominal thickness not attributable to fabrication/erection practices) is identified in the random samples examined using ultrasonic testing (UT) as described in Supplement 1 of NUREG 1929, UT examinations shall be performed on additional random samples, to ensure a 95 percent confidence that 95 percent of the unexamined accessible containment liner is not degraded. If additional degradation is identified, the sample size for UT examinations shall be further expanded until the statistical sampling has achieved the 95 percent confidence goal described previously. All areas with degradation shall be reexamined over at least the next three successive inspection periods to ensure that progression of the degradation is not occurring.

3. This renewed operating license is effective as of the date of issuance and shall expire at midnight on January 29, 2036.

FOR THE NUCLEAR REGULATORY COMMISSION

ORIGINAL SIGNED BY:

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Attachments:
1. Appendix A - Technical Specifications
2. Appendix C - Additional Conditions

Date of Issuance: November 05, 2009

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.
CERTIFIED FUEL HANDLER	A CERTIFIED FUEL HANDLER is an individual who complies with the provisions of the CERTIFIED FUEL HANDLER training and retraining program required by Specification 5.3A.2.
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.
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.

1.1 Definitions

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.
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 5.6.3. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in ICRP 30, Supplement to Part 1, page 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity".
$\bar{E}$ - AVERAGE DISINTEGRATION ENERGY	$\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 15 minutes, making up at least 95% of the total noniodine activity in the coolant.

1.1 Definitions

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

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.

1.1 Definitions

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.
NON-CERTIFIED OPERATOR	A NON-CERTIFIED OPERATOR is a non-licensed operator who complies with the qualification requirements of Specification 5.3A.1, but is not a CERTIFIED FUEL HANDLER.
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 14, Initial Test Program of the Unit 2 UFSAR, and Chapter 13, Initial Tests and Operation, of the Unit 1 UFSAR, b. Authorized under the provisions of 10 CFR 50.59, or c. Otherwise approved by the Nuclear Regulatory Commission.
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates and the Overpressure Protection System setpoint and enable temperature, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.4.

1.1 Definitions

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.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant as specified in the Licensing Requirements Manual, and shall not exceed 2900 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. However, with all RCCAs verified fully inserted by two independent means, it is not necessary to account for a stuck RCCA in the SDM calculation. 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.

1.1 Definitions

STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
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.

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	$\geq$ 0.99	> 5	NA
2	Startup	$\geq$ 0.99	$\leq$ 5	NA
3	Hot Standby	< 0.99	NA	$\geq$ 350
4	Hot Shutdown[(b)]	< 0.99	NA	350 > T_{avg} > 200
5	Cold Shutdown[(b)]	< 0.99	NA	$\leq$ 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 <u>AND</u> and <u>OR</u>. 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.

<u>EXAMPLE 1.2-1</u>

ACTIONS

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

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

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

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

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

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).

DESCRIPTION

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO.

Unless otherwise specified, the Completion Time begins when a senior licensed operator on the operating shift crew with responsibility for plant operations makes the determination that an LCO is not met and an ACTIONS Condition is entered. The "otherwise specified" exceptions are varied, such as a Required Action Note or Surveillance Requirement Note that provides an alternative time to perform specific tasks, such as testing, without starting the Completion Time. While utilizing the Note, should a Condition be applicable for any reason not addressed by the Note, the Completion Time begins. Should the time allowance in the Note be exceeded, the Completion Time begins at that point. The exceptions may also be incorporated into the Completion Time. For example, LCO 3.8.1, "AC Sources – Operating," Required Action B.2, requires declaring required feature(s) supported by an inoperable diesel generator, inoperable when the redundant required feature(s) are inoperable. The Completion Time States, "4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)." In this case the Completion Time does not begin until the conditions in the Completion Time are satisfied.

Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.

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

1.3 Completion Times

DESCRIPTION (continued)

Completion Times are tracked for each Condition starting from the discovery of the situation that required entry into the Condition, unless otherwise specified.

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

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

a. Must exist concurrent with the first inoperability; and

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

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

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

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

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

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 . . ."

1.3 Completion Times

DESCRIPTION (continued)

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.

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.

1.3 Completion Times

EXAMPLES (continued)

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

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

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).

1.3 Completion Times

EXAMPLES (continued)

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.

1.3 Completion Times

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 3.0.2, 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, or

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

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

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

EXAMPLES

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

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

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

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

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval (plus the extension allowed by SR 3.0.2), 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 were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), but the unit was not in MODE 1, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES, even with the 24 hour Frequency exceeded, provided the MODE change was not made into MODE 1. Prior to entering MODE 1 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

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 were not performed within the 7 day (plus the extension allowed by SR 3.0.2) interval, but operation was not in MODE 1, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not result in entry into MODE 1.

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-6

SURVEILLANCE REQUIREMENTS

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

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

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

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 $\geq$ 1.17 for the WRB-1 DNB correlation for Vantage 5H (V5H) fuel assemblies, and $\geq$ 1.14 for WRB-2M DNB correlation for Robust Fuel Assemblies (RFA).

2.1.1.2 The peak fuel centerline temperature shall be maintained $\leq$ 4700°F.

2.1.2 Reactor Coolant System Pressure SL

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

2.2 SAFETY LIMIT VIOLATIONS

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

2.2.2 If SL 2.1.2 is violated:

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

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

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

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

LCO 3.0.7

Test Exception LCOs 3.1.9 and 3.4.19 allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

3.0 LCO Applicability

LCO 3.0.8

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

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

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

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

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1

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

SR 3.0.2

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

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

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

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3

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

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

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

3.0 SR Applicability

SR 3.0.4	Entry into a MODE or other specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with LCO 3.0.4. This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

LCO 3.1.1 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 the limits specified in the COLR.	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 $\pm$ 1% $\Delta k/k$ 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.	7 days
	AND	
	A.2 Establish appropriate operating restrictions and SRs.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	-- **- NOTE -** The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 effective full power days (EFPD) after each fuel loading. -- Verify measured core reactivity is within ± 1% Δk/k of predicted values.	Once prior to entering MODE 1 after each refueling AND -------------------- **- NOTE -** Only required after 60 EFPD -------------------- In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Moderator Temperature Coefficient (MTC)

LCO 3.1.3 The MTC shall be 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	-- **- NOTES -** 1. Not required to be performed until 7 effective full power days (EFPD) after reaching the equivalent of an equilibrium RTP all rods out (ARO) boron concentration of 300 ppm. 2. If the MTC is more negative than the 300 ppm Surveillance limit (not LCO limit) specified in the COLR, SR 3.1.3.2 shall be repeated once per 14 EFPD during the remainder of the fuel cycle. 3. SR 3.1.3.2 need not be repeated if 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. 4. SR 3.1.3.2 is not required to be performed provided that the benchmark criteria specified in WCAP-13749-P-A and the COLR requirements for the calculated revised predicted MTC are satisfied. -- Verify MTC is within lower limit.	Once each cycle

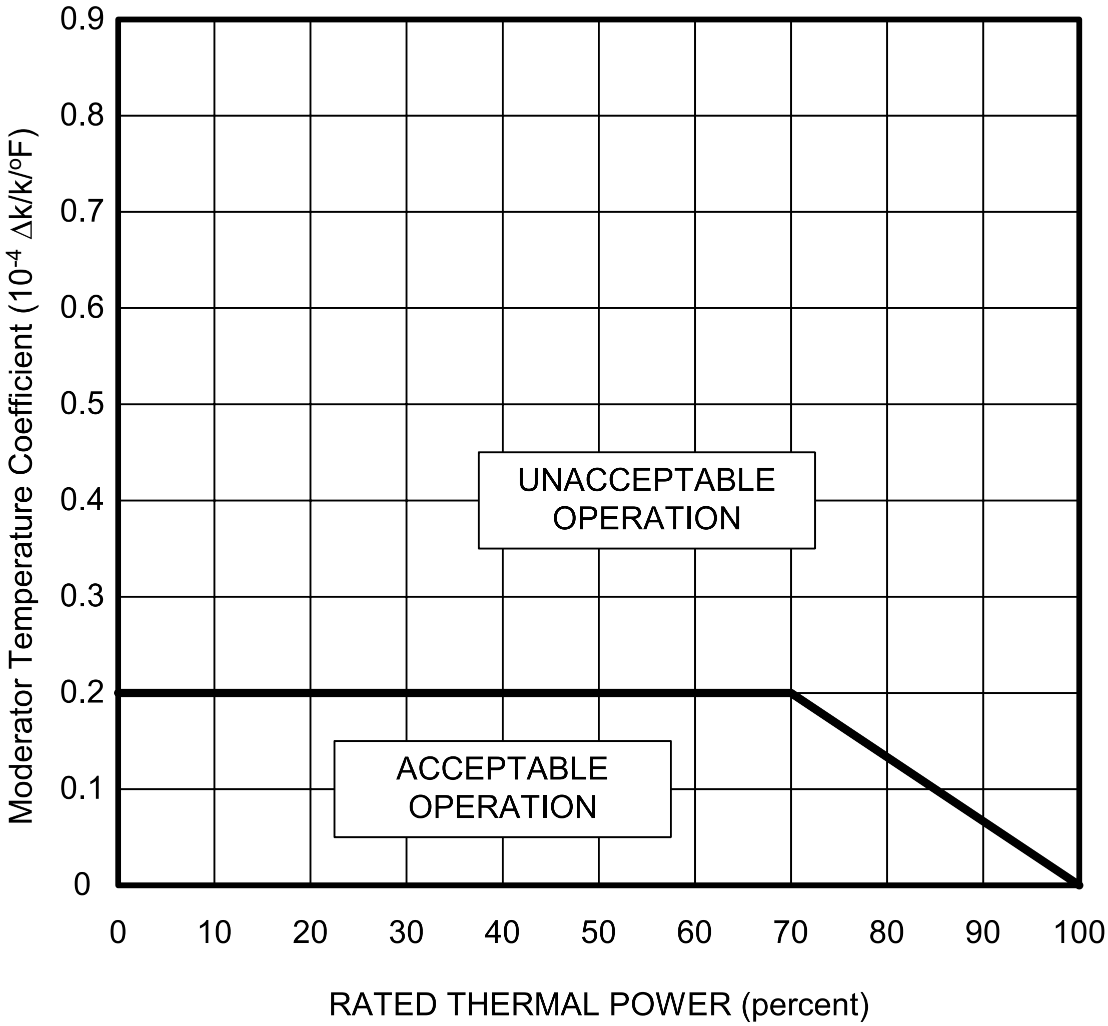

Figure 3.1.3 - 1 (page 1 of 1)
Moderator Temperature Coefficient Vs. Rated Thermal Power

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Rod Group Alignment Limits

3.1.4.1 Unit 1 Rod Group Alignment Limits

LCO 3.1.4.1 All shutdown and control rods shall be OPERABLE.

AND

Individual indicated rod positions shall be within 12 steps (as determined in accordance with Specification 3.1.7.1, Unit 1 Rod Position Indication) of their group step counter demand position.

- NOTE -

Verification of rod OPERABILITY and that the individual indicated rod positions are within the 12 step limit is not required during rod motion and for the first hour following rod motion.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more rod(s) inoperable.	A.1.1 Verify SDM to be within the limits specified in the COLR.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.2 Be in MODE 3.	6 hours
B. One rod not within alignment limits.	B.1 Restore rod to within alignment limits.	1 hour
	OR	
	B.2.1.1 Verify SDM to be within the limits specified in the COLR.	1 hour
	OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.1.2 Initiate boration to restore SDM to within limit. AND	1 hour
	B.2.2 Reduce THERMAL POWER to ≤ 75% RTP. AND	2 hours
	B.2.3 Verify SDM is within the limits specified in the COLR. AND	Once per 12 hours
	B.2.4 Perform SR 3.2.1.1 and SR 3.2.1.2. AND	72 hours
	B.2.5 Perform SR 3.2.2.1. AND	72 hours
	B.2.6 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
D. More than one rod not within alignment limit.	D.1.1 Verify SDM is within the limits specified in the COLR. OR	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.1.2 Initiate boration to restore required SDM to within limit.	1 hour
	AND	
	D.2 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.4.1.1	------------------------------- **- NOTE -** This Surveillance is not required to be performed during rod motion and for the first hour following rod motion. ------------------------------- Verify individual rod positions within alignment limit.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.1.2	Verify rod freedom of movement (trippability) by moving each rod not fully inserted in the core $\geq$ 10 steps in either direction.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.1.3	Verify rod drop time of each rod, from the fully withdrawn position, is $\leq$ 2.7 seconds from the beginning of decay of stationary gripper coil voltage to dashpot entry, with: a. $T_{avg} \geq 500°F$ and b. All reactor coolant pumps operating.	Prior to criticality after each removal of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Rod Group Alignment Limits

3.1.4.2 Unit 2 Rod Group Alignment Limits

LCO 3.1.4.2 All shutdown and control rods shall be OPERABLE.

AND

Individual indicated rod positions shall be within 12 steps (as determined in accordance with Specification 3.1.7.2, Unit 2 Rod Position Indication) of their group step counter demand position.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more rod(s) inoperable.	A.1.1 Verify SDM to be within the limits specified in the COLR.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.2 Be in MODE 3.	6 hours
B. One rod not within alignment limits.	B.1.1 Verify SDM to be within the limits specified in the COLR.	1 hour
	OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.1.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	B.2	Reduce THERMAL POWER to ≤ 75% RTP.	2 hours
	AND		
	B.3	Verify SDM is within the limits specified in the COLR.	Once per 12 hours
	AND		
	B.4	Perform SR 3.2.1.1, SR 3.2.1.2, and SR 3.2.2.1.	72 hours
	AND		
	B.5	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
D. More than one rod not within alignment limit.	D.1.1	Verify SDM is within the limits specified in the COLR.	1 hour
	OR		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	D.1.2 Initiate boration to restore required SDM to within limit.	1 hour
	AND	
	D.2 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.2.1	- NOTE - Not required to be performed for rods associated with inoperable rod position indicator or demand position indicator. Verify position of individual rods within alignment limit.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.2.2	Verify rod freedom of movement (trippability) by moving each rod not fully inserted in the core $\geq$ 10 steps in either direction.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.2.3	Verify rod drop time of each rod, from the fully withdrawn position, is $\leq$ 2.7 seconds from the beginning of decay of stationary gripper coil voltage to dashpot entry, with: a. $T_{avg} \geq 500°F$ and b. All reactor coolant pumps operating.	Prior to criticality after each removal of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Shutdown Bank Insertion Limits

3.1.5.1 Unit 1 Shutdown Bank Insertion Limits

LCO 3.1.5.1 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 3.1.4.1.2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1.1	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

3.1.5 Shutdown Bank Insertion Limits

3.1.5.2 Unit 2 Shutdown Bank Insertion Limits

LCO 3.1.5.2 Each shutdown bank shall be within insertion limits specified in the COLR.

- NOTE -
Not applicable to shutdown banks inserted while performing SR 3.1.4.2.2.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One shutdown bank inserted ≤ 12 steps beyond the insertion limits specified in the COLR.	A.1 Verify all control banks are within the insertion limits specified in the COLR.	1 hour
	AND	
	A.2.1 Verify SDM is within the limits specified in the COLR.	1 hour
	OR	
	A.2.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.3 Restore the shutdown bank to within the insertion limits specified in the COLR.	24 hours
B. One or more shutdown banks not within limits for reasons other than Condition A.	B.1.1 Verify SDM is within the limits specified in the COLR.	1 hour
	OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.1.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	B.2	Restore shutdown banks to within limits.	2 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.2.1	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

3.1.6.1 Unit 1 Control Bank Insertion Limits

LCO 3.1.6.1 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 3.1.4.1.2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Control bank insertion limits not met.	A.1.1 Verify SDM is within the limits specified in the COLR.	1 hour
	<u>OR</u>	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	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 the limits specified in the COLR.	1 hour
	<u>OR</u>	
	B.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.2	Restore control bank sequence and overlap to within limits.	2 hours
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 3.1.6.1.1	Verify estimated critical control bank position is within the limits specified in the COLR.	Within 4 hours prior to achieving criticality
SR 3.1.6.1.2	Verify each control bank insertion is within the insertion limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.1.6.1.3	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

3.1.6 Control Bank Insertion Limits

3.1.6.2 Unit 2 Control Bank Insertion Limits

LCO 3.1.6.2 Control banks shall be within the insertion, sequence, and overlap limits specified in the COLR.

- NOTE -

Not applicable to control banks inserted while performing SR 3.1.4.2.2.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Control bank A, B, or C inserted ≤ 12 steps beyond the insertion, sequence, or overlap limits specified in the COLR.	A.1 Verify all shutdown banks are within the insertion limits specified in the COLR.	1 hour
	AND	
	A.2.1 Verify SDM is within the limits specified in the COLR.	1 hour
	OR	
	A.2.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.3 Restore the control bank to within the insertion, sequence, and overlap limits specified in the COLR.	24 hours
B. Control bank insertion limits not met for reasons other than Condition A.	B.1.1 Verify SDM is within the limits specified in the COLR.	1 hour
	OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.1.2 Initiate boration to restore SDM to within limit. AND B.2 Restore control bank(s) to within limits.	1 hour 2 hours
C. Control bank sequence or overlap limits not met for reasons other than Condition A.	C.1.1 Verify SDM is within the limits specified in the COLR. OR C.1.2 Initiate boration to restore SDM to within limit. AND C.2 Restore control bank sequence and overlap to within limits.	1 hour 1 hour 2 hours
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 2 with k_{eff} < 1.0.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.2.1	Verify estimated critical control bank position is within the limits specified in the COLR.	Within 4 hours prior to achieving criticality
SR 3.1.6.2.2	Verify each control bank insertion is within the insertion limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.1.6.2.3	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

3.1.7.1 Unit 1 Rod Position Indication

LCO 3.1.7.1 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 inoperable rod position indicator and each demand position indicator.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------- **- NOTE -** Not required for misalignment indications during rod motion and for up to 1 hour following rod motion. ---------- RPI System indicates one or more potentially misaligned rods.	A.1 Verify the affected rod position by measuring the RPI channel primary voltage.	15 minutes
	AND	
	A.2.1 Enter applicable Conditions and Required Actions of LCO 3.1.4.1, "Unit 1 Rod Group Alignment Limits," for any rod determined to be misaligned by RPI channel primary voltage measurement.	15 minutes
	OR	
	A.2.2 Declare the affected RPI inoperable and enter the applicable Conditions and Required Actions of this Specification.	15 minutes

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One RPI per group inoperable for one or more groups.	B.1	Verify the position of the rods with inoperable position indicators indirectly by using movable incore detectors or by measuring rod position channel primary voltage.	Once per 8 hours
	<u>OR</u>		
	B.2	Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
C. More than one RPI per group inoperable.	C.1	Place the control rods under manual control.	Immediately
	<u>AND</u>		
	C.2	Monitor and record Reactor Coolant System T_{avg}.	Once per 1 hour
	<u>AND</u>		
	C.3	Verify the position of the rods with inoperable position indicators indirectly by using the movable incore detectors or by measuring rod position channel primary voltage.	Once per 8 hours
	<u>AND</u>		
	C.4	Restore inoperable position indicators to OPERABLE status such that a maximum of one RPI per group is inoperable.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more rods with inoperable position indicators have been moved in excess of 24 steps in one direction since the last determination of the rod's position.	D.1.1 Initiate action to verify the position of the rods with inoperable position indicators indirectly by using movable incore detectors or by measuring rod position channel primary voltage.	Immediately
	AND	
	D.1.2 Complete rod position verification started in Required Action D.1.1.	8 hours
	OR	
	D.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
E. One demand position indicator per bank inoperable for one or more banks.	E.1.1 Verify by administrative means all RPIs for the affected banks are OPERABLE.	Once per 8 hours
	AND	
	E.1.2 Verify the most withdrawn rod and the least withdrawn rod of the affected banks are ≤ 12 steps apart.	Once per 8 hours
	OR	
	E.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
F. Required Action and associated Completion Time not met.	F.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1.1	Verify each control bank benchboard group step demand counter agrees within ± 2 steps with the solid state indicators in the logic cabinet.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.1.2	-- **- NOTE -** Not required to be met during rod motion and for the first hour following rod motion. -- Verify each RPI agrees within 12 steps of the group demand position for the full indicated range of rod travel.	Once prior to criticality after each removal of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Rod Position Indication

3.1.7.2 Unit 2 Rod Position Indication

LCO 3.1.7.2 The Digital Rod Position Indication (DRPI) System and the Demand Position Indication System shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

- NOTE -

Separate Condition entry is allowed for each inoperable DRPI and each demand position indicator.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One DRPI per group inoperable in one or more groups.	A.1	Verify the position of the rod with inoperable DRPI indirectly by using movable incore detectors.	Once per 8 hours
	<u>OR</u>		
	A.2	Verify the position of the rod with inoperable DRPI indirectly by using the moveable incore detectors.	8 hours <u>AND</u> Once per 31 EFPD thereafter <u>AND</u> 8 hours after discovery of each unintended rod movement <u>AND</u> 8 hours after each movement of rod with inoperable DRPI > 12 steps <u>AND</u>

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
			Prior to THERMAL POWER exceeding 50% RTP AND 8 hours after reaching RTP
	OR		
	A.3	Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
B. More than one DRPI per group inoperable in one or more groups.	B.1	Place the control rods under manual control.	Immediately
	AND		
	B.2	Restore inoperable DRPIs to OPERABLE status such that a maximum of one DRPI per group is inoperable.	24 hours
C. One or more DRPI inoperable in one or more groups and associated rod has been moved > 24 steps in one direction since the last determination of the rod's position.	C.1	Verify the position of the rods with inoperable DRPIs indirectly by using movable incore detectors.	8 hours
	OR		
	C.2	Reduce THERMAL POWER to ≤ 50% RTP.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more demand position indicators per bank inoperable in one or more banks.	D.1.1	Verify by administrative means all DRPIs for the affected banks are OPERABLE.	Once per 8 hours
	AND		
	D.1.2	Verify the most withdrawn rod and the least withdrawn rod of the affected banks are ≤ 12 steps apart.	Once per 8 hours
	OR		
	D.2	Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
E. Required Action and associated Completion Time not met.	E.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.2.1	---------- **- NOTE -** Not required to be met for DRPIs associated with rods that do not meet LCO 3.1.4.2. ---------- Verify each DRPI agrees within 12 steps of the group demand position for the full indicated range of rod travel.	Once prior to criticality after each removal of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 Unborated Water Source Isolation Valves

LCO 3.1.8 Each valve used to isolate unborated water sources shall be secured in the closed position.

- NOTE -

Unborated water source isolation valves may be opened under administrative control for planned boron dilution or makeup activites.

APPLICABILITY: MODES 4, 5, and 6.

ACTIONS

- NOTE -

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ------------------------------- **- NOTE -** Required Action A.3 must be completed whenever Condition A is entered. ------------------------------- One or more valves not secured in closed position.	A.1 Suspend all operations involving positive reactivity changes and CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2 Initiate actions to secure valve in closed position.	Immediately
	<u>AND</u>	
	A.3 Perform SR 3.9.1.1 (applicable in MODE 6) or SR 3.1.1.1 (applicable in MODES 4 and 5).	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	Verify each valve that isolates unborated water sources is secured in the closed position.	Within 15 minutes after a planned boron dilution or makeup activity AND In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.9 PHYSICS TESTS Exceptions - MODE 2

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

LCO 3.1.3, "Moderator Temperature Coefficient,"
LCO 3.1.4.1, "Unit 1 Rod Group Alignment Limits,"
LCO 3.1.4.2, "Unit 2 Rod Group Alignment Limits,"
LCO 3.1.5.1, "Unit 1 Shutdown Bank Insertion Limits,"
LCO 3.1.5.2, "Unit 2 Shutdown Bank Insertion Limits,"
LCO 3.1.6.1, "Unit 1 Control Bank Insertion Limits,"
LCO 3.1.6.2, "Unit 2 Control Bank Insertion Limits," and
LCO 3.4.2, "RCS Minimum Temperature for Criticality"

may be suspended, and

1. The number of required channels for LCO 3.3.1, "RTS Instrumentation," Functions 2, 3, and 17.e, may be reduced to 3 required channels provided:

   a. RCS lowest loop average temperature is $\geq$ 531°F,

   b. SDM is within the limits specified in the COLR, and

   c. THERMAL POWER is $\leq$ 5% RTP, and

2. For Unit 1 only, primary detector voltage measurements may be used to determine the position of rods in shutdown banks A and B and control banks A and B for the purpose of satisfying Specification 3.1.7.1.

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 3.1.9.1	Perform a CHANNEL OPERATIONAL TEST on power range and intermediate range channels per SR 3.3.1.6, SR 3.3.1.7, and Table 3.3.1-1.	Prior to initiation of PHYSICS TESTS
SR 3.1.9.2	Verify the RCS lowest loop average temperature is ≥ 531°F.	In accordance with the Surveillance Frequency Control Program
SR 3.1.9.3	Verify THERMAL POWER is ≤ 5% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.1.9.4	Verify SDM is within the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.10 RCS Boron Limitations < 500°F

LCO 3.1.10 The boron concentration of the Reactor Coolant System (RCS) shall be > the all rods out (ARO) critical boron concentration.

APPLICABILITY: MODE 2 with K_{eff} < 1.0 with any RCS cold leg temperature < 500°F and with Rod Control System capable of rod withdrawal,
MODE 3 with any RCS cold leg temperature < 500°F and with Rod Control System capable of rod withdrawal,
MODES 4 and 5 with Rod Control System capable of rod withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RCS boron concentration not within limit.	A.1	Initiate boration to restore RCS boron concentration to within limit.	Immediately
	OR		
	A.2	Initiate action to place the Rod Control System in a condition incapable of rod withdrawal.	Immediately
	OR		
	A.3	------------------------------------ **- NOTE -** Not applicable in MODES 4 and 5. -----------------------------------	
		Initiate action to increase all RCS cold leg temperatures to ≥ 500°F.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.10.1	Verify RCS boron concentration is > the ARO critical boron concentration.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.1 Heat Flux Hot Channel Factor $F_Q(Z)$ (RAOC-T(Z) Methodology)

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 prior to increasing THERMAL POWER above the limit of Required Action A.1. SR 3.2.1.2 is not required to be performed if this Condition is entered prior to THERMAL POWER exceeding 75% RTP after a refueling. -- A. $F_Q^C(Z)$ not within limit.	A.1 Reduce THERMAL POWER ≥ 1% RTP for each 1% $F_Q^C(Z)$ exceeds limit. <u>AND</u>	15 minutes after each $F_Q^C(Z)$ determination
	A.2 Reduce Power Range Neutron Flux - High trip setpoints ≥ 1% for each 1% that THERMAL POWER is limited below RATED THERMAL POWER by Required Action A.1. <u>AND</u>	72 hours after each $F_Q^C(Z)$ determination
	A.3 Reduce Overpower ΔT trip setpoints ≥ 1% for each 1% that THERMAL POWER is limited below RATED THERMAL POWER by Required Action A.1. <u>AND</u>	72 hours after each $F_Q^C(Z)$ determination
	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
B. $F_Q^W(Z)$ not within limits.	B.1.1	Implement a RAOC operating space specified in the COLR that restores $F_Q^W(Z)$ to within its limits.	4 hours
		AND	
	B.1.2	Perform SR 3.2.1.1 and SR 3.2.1.2 if control rod motion is required to comply with the new operating space.	72 hours
	OR		
	B.2.1	-------------NOTE--------------- Required Action B.2.4 shall be completed whenever Required Action B.2.1 is performed prior to increasing THERMAL POWER above the limit of Required Action B.2.1. ------------------------------------ Limit THERMAL POWER to less than RATED THERMAL POWER and reduce AFD limits as specified in the COLR.	4 hours
		AND	
	B.2.2	Reduce Power Range Neutron Flux - High trip setpoints ≥ 1% for each 1% that THERMAL POWER is limited below RATED THERMAL POWER by Required Action B.2.1.	72 hours
		AND	
	B.2.3	Reduce Overpower ΔT trip setpoints ≥ 1% for each 1% that THERMAL POWER is limited below RATED THERMAL POWER by Required Action B.2.1.	72 hours
		AND	
	B.2.4	Perform SR 3.2.1.1 and SR 3.2.1.2.	Prior to increasing THERMAL POWER above the limit of Required Action B.2.1
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	Verify $F_Q^C(Z)$ is within limit.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP <u>AND</u> 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	Verify $F_Q^W(Z)$ is within limit.	Once after each refueling within 24 hours after THERMAL POWER exceeds 75% RTP AND 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 AND 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.3 must be completed whenever Condition A is entered. ---------------------------------- $F^N_{\Delta H}$ not within limit.	A.1.1 Restore $F^N_{\Delta H}$ to within limit.	4 hours
	<u>OR</u>	
	A.1.2.1 Reduce THERMAL POWER to < 50% RTP.	4 hours
	<u>AND</u>	
	A.1.2.2 Reduce Power Range Neutron Flux - High trip setpoints to ≤ 55% RTP.	72 hours
	<u>AND</u>	
	A.2 Perform SR 3.2.2.1.	24 hours
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.3	---------------------------------- **- 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 <u>AND</u> Prior to THERMAL POWER exceeding 75% RTP <u>AND</u> 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 in % flux difference units shall be maintained within the limits specified in the COLR.

- NOTE -

The AFD shall be considered outside limits when two or more OPERABLE excore channels indicate AFD to be outside limits.

APPLICABILITY: MODE 1 with THERMAL POWER $\geq$ 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. AFD not within limits.	A.1 Reduce THERMAL POWER to < 50% RTP.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify AFD within limits for each OPERABLE excore channel.	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 ≤ 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 ≥ 3% from RTP for each 1% of QPTR > 1.00.	2 hours after each QPTR determination
	<u>AND</u>		
	A.2	Determine QPTR.	Once per 12 hours
	<u>AND</u>		
	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 <u>AND</u> Once per 7 days thereafter
	<u>AND</u>		
	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
	<u>AND</u>		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	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
	<u>AND</u>		
	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
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 Manual Reactor Trip channel inoperable.	B.1 Restore channel to OPERABLE status.	48 hours
	OR	
	B.2 Be in MODE 3.	54 hours
C. One channel or train inoperable.	C.1 Restore channel or train to OPERABLE status.	48 hours
	OR	
	C.2.1 Initiate action to fully insert all rods.	48 hours
	AND	
	C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.	49 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One Power Range Neutron Flux - High channel inoperable.	-- **- NOTE -** The inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels. --	
	D.1.1 Place channel in trip.	72 hours
	AND	
	D.1.2 Reduce THERMAL POWER to ≤ 75% RTP.	78 hours
	OR	
	D.2.1 Place channel in trip.	72 hours
	AND	
	D.2.2 ------------------------------------ **- NOTE -** Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable. ------------------------------------	
	Perform SR 3.2.4.2.	Once per 12 hours
	OR	
	D.3 Be in MODE 3.	78 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One channel inoperable.	------------------------------ **- NOTE -** The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ------------------------------	
	E.1 Place channel in trip.	72 hours
	<u>OR</u>	
	E.2 Be in MODE 3.	78 hours
F. One Intermediate Range Neutron Flux channel inoperable.	F.1 Reduce THERMAL POWER to < P-6.	24 hours
	<u>OR</u>	
	F.2 Increase THERMAL POWER to > P -10.	24 hours
G. Two Intermediate Range Neutron Flux channels 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
	<u>AND</u>	
	G.2 Reduce THERMAL POWER to < P-6.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
H. One Source Range Neutron Flux channel inoperable.	- NOTE - Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM.		
	H.1	Suspend operations involving positive reactivity additions.	Immediately
I. Two Source Range Neutron Flux channels inoperable.	I.1	Open reactor trip breakers (RTBs).	Immediately
J. One Source Range Neutron Flux channel inoperable.	J.1	Restore channel to OPERABLE status.	48 hours
	OR		
	J.2.1	Initiate action to fully insert all rods.	48 hours
	AND		
	J.2.2	Place the Rod Control System in a condition incapable of rod withdrawal.	49 hours
K. One channel inoperable.	- NOTE - The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.		
	K .1	Place channel in trip.	72 hours
	OR		
	K.2	Reduce THERMAL POWER to < P-7.	78 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. One Turbine Trip channel inoperable.	- NOTE - The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.	
	L.1 Place channel in trip.	72 hours
	OR	
	L.2 Reduce THERMAL POWER to < P-9.	76 hours
M. One train inoperable.	- NOTE - One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.	
	M.1 Restore train to OPERABLE status.	24 hours
	OR	
	M.2 Be in MODE 3.	30 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
N. One RTB train inoperable.	- NOTE - One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.		
	N.1	Restore train to OPERABLE status.	24 hours
	OR		
	N.2	Be in MODE 3.	30 hours
O. One or more channels inoperable.	O.1	Verify interlock is in required state for existing unit conditions.	1 hour
	OR		
	O.2	Be in MODE 3.	7 hours
P. One or more channels inoperable.	P.1	Verify interlock is in required state for existing unit conditions.	1 hour
	OR		
	P.2	Be in MODE 2.	7 hours
Q. One trip mechanism inoperable for one RTB.	Q.1	Restore inoperable trip mechanism to OPERABLE status.	48 hours
	OR		
	Q.2	Be in MODE 3.	54 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
R. One channel inoperable.	-- **- NOTE -** The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. --		
	R.1	Place channel in trip.	72 hours
S. Required Action and associated Completion Time of Condition R not met. OR Two or more channels inoperable.	S.1.1	Initiate action to fully insert all rods.	Immediately
	AND		
	S.1.2	Initiate action to place the Rod Control System in a condition incapable of rod withdrawal.	Immediately
	OR		
	S.2	Initiate action to borate the RCS to > the all rods out (ARO) critical boron concentration.	Immediately

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
SR 3.3.1.2	**- NOTE -** Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. Compare results of calorimetric heat balance calculation to power range channel output. Adjust power range channel output if calorimetric heat balance calculations results exceed power range channel output by more than +2% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3	**- NOTE -** Not required to be performed until 7 days after THERMAL POWER is ≥ 50% RTP. Compare results of the incore detector measurements to Nuclear Instrumentation System (NIS) AFD. Adjust NIS channel if absolute difference is ≥ 3%.	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	-- **- NOTE -** Not required to be performed for source range instrumentation until 12 hours after power has been reduced below P-6. -- Perform COT.	 In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.7	--- **- NOTE -** This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. --- Perform COT.	------------------------ **- NOTE -** Only required when not performed within the Frequency specified in the Surveillance Frequency Control Program ------------------------ Prior to reactor startup <u>AND</u> Twelve hours after reducing power below P-10 for power and intermediate range instrumentation <u>AND</u> In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	-- **- NOTE -** Verification of setpoint is not required. -- Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.9	-- **- NOTE -** Not required to be performed until 7 days after THERMAL POWER is ≥ 50% RTP. -- Calibrate excore channels to agree with incore detector measurements.	Once per fuel cycle
SR 3.3.1.10	-- **- NOTES -** 1. This Surveillance shall include verification that the time constants are adjusted to the prescribed values. 2. Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.11	Perform COT.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.12	- NOTE - Verification of setpoint is not required. Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.13	- NOTE - Verification of setpoint is not required. Perform TADOT.	Prior to exceeding the P-9 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days
SR 3.3.1.14	- 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 9)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
1. Manual Reactor Trip	1,2	2	B	SR 3.3.1.12	NA	NA
	$3^{(a)}$, $4^{(a)}$, $5^{(a)}$	2	C	SR 3.3.1.12	NA	NA
2. Power Range Neutron Flux						
a. High	1,2	4	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.14	≤ 109.5% RTP	≤ 109.5% RTP
b. Low	$1^{(b)}$,$2^{(c)}$	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.14	≤ 25.5% RTP	≤ 25.5% RTP
	$2^{(d)}$, $3^{(e)}$	4	R, S	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.14	≤ 25.5% RTP	≤ 25.5% RTP
3. Power Range Neutron Flux High Positive Rate	1,2	4	E	SR 3.3.1.6 SR 3.3.1.10	≤ 5.5% RTP with time constant ≥ 2 sec	≤ 5.5% RTP with time constant ≥ 2 sec
4. Intermediate Range Neutron Flux	$1^{(b)}$, $2^{(f)}$	2	F,G	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ 27.9% RTP	≤ 27.9% RTP
5. Source Range Neutron Flux	$2^{(g)}$	2	H,I	SR 3.3.1.1 SR 3.3.1.6 SR 3.3.1.10	≤ 1.3 E5 cps	≤ 1.3 E5 cps
	$3^{(a)}$, $4^{(a)}$, $5^{(a)}$	2	I,J	SR 3.3.1.1 SR 3.3.1.6 SR 3.3.1.10	≤ 1.3 E5 cps	≤ 1.3 E5 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) interlocks.

(c) With $k_{eff} \geq 1.0$.

(d) With $k_{eff} < 1.0$, and all RCS cold leg temperatures ≥ 500°F, and RCS boron concentration ≤ the ARO critical boron concentration when the Rod Control System is capable of rod withdrawal, or one or more rods not fully inserted.

(e) With all RCS cold leg temperatures ≥ 500°F, and RCS boron concentration ≤ the ARO critical boron concentration, when the Rod Control System is capable of rod withdrawal, or one or more rods not fully inserted.

(f) Above the P-6 (Intermediate Range Neutron Flux) interlocks.

(g) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

Table 3.3.1-1 (page 2 of 9)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
6. Overtemperature ΔT	1,2	3	E	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.14	Refer to Note 1	Refer to Note 3
7. Overpower ΔT	1,2	3	E	SR 3.3.1.1 SR 3.3.1.6 SR 3.3.1.10 SR 3.3.1.14	Refer to Note 2	Refer to Note 4
8. Pressurizer Pressure						
a. Low	$1^{(h)}$	3	K	SR 3.3.1.1 SR 3.3.1.6 SR 3.3.1.10 SR 3.3.1.14	≥ 1941 psig	≥ 1941 psig with time constants ≥ 2 sec for lead and ≤ 1 sec for lag
b. High	1,2	3	E	SR 3.3.1.1 SR 3.3.1.6 SR 3.3.1.10 SR 3.3.1.14	≤ 2389 psig	≤ 2379 psig
9. Pressurizer Water Level - High	$1^{(h)}$	3	K	SR 3.3.1.1 SR 3.3.1.6 SR 3.3.1.10	≤ 92.5%	≤ 92.5%
10. Reactor Coolant Flow - Low	$1^{(h)}$	3 per loop	K	SR 3.3.1.1 SR 3.3.1.6 SR 3.3.1.10 SR 3.3.1.14	≥ 89.8%	≥ 89.6%
11. Reactor Coolant Pump (RCP) Breaker Position	$1^{(h)}$	1 per RCP	K	SR 3.3.1.12	NA	NA

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

Table 3.3.1-1 (page 3 of 9)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
12. Undervoltage RCPs	1(h)	1 per bus	K	SR 3.3.1.8 SR 3.3.1.10 SR 3.3.1.14	≥ 2962 V	≥ 2962 V
13. Underfrequency RCPs	1(h)	1 per bus	K	SR 3.3.1.8 SR 3.3.1.10 SR 3.3.1.14	≥ 57.4 Hz	≥ 57.45 Hz
14. Steam Generator (SG) Water Level - Low Low	1,2	3 per SG	E	SR 3.3.1.1 SR 3.3.1.6(k)(l) SR 3.3.1.10(k)(l) SR 3.3.1.14	≥ 19.1%	≥ 20%
15. Turbine Trip						
a. Low Fluid Oil Pressure Auto Stop (Unit 1) Emergency Trip Header (Unit 2)	1(i)	3	L	SR 3.3.1.10 SR 3.3.1.13	≥ 42.9 psig	≥ 958 psig
b. Turbine Stop Valve Closure	1(i)	4	L	SR 3.3.1.10 SR 3.3.1.13	≥ 1% open	≥ 1% open
16. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	M	SR 3.3.1.12	NA	NA

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

(i) Above the P-9 (Power Range Neutron Flux) interlock.

(k) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

(l) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the Nominal Trip Setpoint, or a value that is more conservative than the Nominal Trip Setpoint; otherwise, the channel shall be declared inoperable. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined as-found acceptance criteria band, and the as-left setpoint tolerance band are specified in a document incorporated by reference into the Updated Final Safety Analysis Report.

Table 3.3.1-1 (page 4 of 9)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
17. Reactor Trip System Interlocks						
a. Intermediate Range Neutron Flux, P-6	2(g)	2	O	SR 3.3.1.10 SR 3.3.1.11	≥ 9E-11 amp	≥ 9E-11 amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	P	SR 3.3.1.5	NA	NA
c. Power Range Neutron Flux, P-8	1	4	P	SR 3.3.1.10 SR 3.3.1.11	≤ 30.5% RTP	≤ 30.5% RTP
d. Power Range Neutron Flux, P-9	1	4	P	SR 3.3.1.10 SR 3.3.1.11	≤ 49.5% RTP	≤ 49.5% RTP
e. Power Range Neutron Flux, P-10	1,2	4	O	SR 3.3.1.10 SR 3.3.1.11	≥ 9.5% RTP and ≤ 10.5% RTP	≥ 9.5% RTP and ≤ 10.5% RTP
f. Turbine First Stage Pressure, P-13	1	2	P	SR 3.3.1.10 SR 3.3.1.11	≤ 10.5% turbine power	≤ 10.5% turbine power
18. Reactor Trip Breakers(j) (RTBs)	1,2	2 trains	N	SR 3.3.1.4	NA	NA
	3(a), 4(a), 5(a)	2 trains	C	SR 3.3.1.4	NA	NA
19. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	Q	SR 3.3.1.4	NA	NA
	3(a), 4(a), 5(a)	1 each per RTB	C	SR 3.3.1.4	NA	NA
20. Automatic Trip Logic	1,2	2 trains	M	SR 3.3.1.5	NA	NA
	3(a), 4(a), 5(a)	2 trains	C	SR 3.3.1.5	NA	NA

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

(g) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

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

Table 3.3.1-1 (page 5 of 9)
Reactor Trip System Instrumentation

Note 1 (Unit 1): Overtemperature ΔT

The Overtemperature ΔT Function Allowable Value shall not exceed the following nominal trip setpoint by more than 0.5% ΔT span for the ΔT channel, 0.5% ΔT span for the T_{avg} channel, 0.5% ΔT span for the Pressurizer Pressure channel and 0.5% ΔT span for the f(ΔI) channel.

$$\Delta T \frac{1}{(1+\tau_4 S)} \leq \Delta T_0 \left[K_1 - K_2 \left(\frac{1+\tau_1 S}{1+\tau_2 S}\right)\left[T \frac{1}{(1+\tau_5 S)} - T'\right] + K_3 \left(P - P'\right) - f(\Delta I)\right]$$

where: ΔT is measured RCS ΔT, °F.

ΔT_0 is loop specific indicated ΔT at RTP, °F.

T is measured RCS average temperature, °F.

T' is T_{avg} at RTP specified in the COLR.

P is measured pressurizer pressure, psia.

P' is nominal pressurizer pressure specified in the COLR.

$\frac{1+\tau_1 S}{1+\tau_2 S}$ is the function generated by the lead-lag compensator for T_{avg}.

τ_1 & τ_2 are the time constants utilized in the lead-lag compensator for T_{avg} specified in the COLR.

$\frac{1}{(1+\tau_4 S)}$ is the function generated by the lag compensator for measured ΔT.

$\frac{1}{(1+\tau_5 S)}$ is the function generated by the lag compensator for measured T_{avg}.

τ_4 & τ_5 are the time constants utilized in the lag compensators for ΔT and T_{avg}, respectively, specified in the COLR.

S is the Laplace transform operator, sec^{-1}.

K_1 is specified in the COLR.

K_2 is specified in the COLR.

K_3 is specified in the COLR.

f(ΔI) is a function of the indicated difference between top and bottom detectors of the power-range nuclear ion chambers as specified in the COLR.

Table 3.3.1-1 (page 6 of 9)
Reactor Trip System Instrumentation

Note 2 (Unit 1): Overpower ΔT

The Overpower ΔT Function Allowable Value shall not exceed the following nominal trip setpoint by more than 0.5% ΔT span for the ΔT channel and 0.5% ΔT span for the T_{avg} channel.

$$\Delta T \frac{1}{(1+\tau_4 S)} \leq \Delta T_0 \left[K_4 - K_5\left(\frac{\tau_3 S}{1+\tau_3 S}\right) T \frac{1}{(1+\tau_5 S)} - K_6 \left[T \frac{1}{(1+\tau_5 S)} - T''\right]\right]$$

where: ΔT is measured RCS ΔT, °F.

ΔT_0 is loop specific indicated ΔT at RTP, °F.

T is measured RCS average temperature, °F.

T'' is T_{avg} at RTP specified in the COLR.

K_4 is specified in the COLR.

K_5 is specified in the COLR.

K_6 is specified in the COLR.

$\frac{\tau_3 S}{1+\tau_3 S}$ is the function generated by the rate lag compensator for T_{avg}.

τ_3 is the time constant utilized in the rate lag compensator for T_{avg} specified in the COLR.

$\frac{1}{(1+\tau_4 S)}$ is the function generated by the lag compensator for measured ΔT.

$\frac{1}{(1+\tau_5 S)}$ is the function generated by the lag compensator for measured T_{avg}.

τ_4 & τ_5 are the time constants utilized in the lag compensators for ΔT and T_{avg}, respectively, specified in the COLR.

S is the Laplace transform operator, sec^{-1}.

Table 3.3.1-1 (page 7 of 9)
Reactor Trip System Instrumentation

Note 3 (Unit 2): Overtemperature ΔT

The Overtemperature ΔT Function Allowable Value shall not exceed the following nominal trip setpoint by more than 0.5% ΔT span for the ΔT channel, 0.5% ΔT span for the T_{avg} channel, 0.5% ΔT span for the Pressurizer Pressure channel and 0.5% ΔT span for the f(ΔI) channel.

$$\Delta T \frac{(1+\tau_1 S)}{(1+\tau_2 S)}\left(\frac{1}{1+\tau_3 S}\right) \le \Delta T_0 \left\{K_1 - K_2 \frac{(1+\tau_4 S)}{(1+\tau_5 S)}\left[T\left(\frac{1}{1+\tau_6 S}\right) - T'\right] + K_3(P - P') - f_1(\Delta I)\right\}$$

where:

ΔT is measured RCS ΔT, °F.

$\frac{1+\tau_1 S}{1+\tau_2 S}$ is the function generated by the lead-lag compensator on measured ΔT.

τ_1, τ_2 are the time constants utilized in the lead-lag compensator for ΔT specified in the COLR.

$\frac{1}{1+\tau_3 S}$ is the function generated by the lag compensator on measured ΔT.

τ_3 is the time constant utilized in the lag compensator for ΔT specified in the COLR.

ΔT_0 is the loop specific indicated ΔT at RTP, °F.

K_1 is specified in the COLR.

K_2 is specified in the COLR.

$\frac{1+\tau_4 S}{1+\tau_5 S}$ is the function generated by the lead-lag compensator for T_{avg}.

τ_4, τ_5 are the time constants utilized in lead-lag compensator for T_{avg} specified in the COLR.

T is measured RCS average temperature, °F.

$\frac{1}{1+\tau_6 S}$ is the function generated by the lag compensator on measured T_{avg}.

τ_6 is the time constant utilized in the lag compensator for T_{avg} specified in the COLR.

T' is T_{avg} at RTP specified in the COLR.

Table 3.3.1-1 (page 8 of 9)
Reactor Trip System Instrumentation

Note 3 (Unit 2): Overtemperature ΔT (Continued)

K_3 is specified in the COLR.

P is measured pressurizer pressure, psia.

P' is nominal pressurizer pressure specified in the COLR.

S is the Laplace transform operator, sec^{-1}.

$f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power-range nuclear ion chambers as specified in the COLR.

Note 4 (Unit 2): Overpower ΔT

The Overpower ΔT Function Allowable Value shall not exceed the following nominal trip setpoint by more than 0.5% ΔT span for the ΔT channel and 0.5% ΔT span for the T_{avg} channel.

$$\Delta T \frac{(1+\tau_1 S)}{(1+\tau_2 S)} \frac{(1)}{(1+\tau_3 S)} \leq \Delta T_0 \left\{K_4 - K_5 \frac{(\tau_7 S)}{(1+\tau_7 S)} \frac{(1)}{(1+\tau_6 S)} T - K_6 \left[T \frac{(1)}{(1+\tau_6 S)} - T''\right]\right\}$$

where: ΔT is measured RCS ΔT, °F.

$\frac{1+\tau_1 S}{1+\tau_2 S}$ is the function generated by the lead-lag compensator on measured ΔT.

τ_1, τ_2 are time constants utilized in the lead-lag compensator for ΔT specified in the COLR.

$\frac{1}{1+\tau_3 S}$ is the function generated by the lag compensator on measured ΔT.

τ_3 is the time constant utilized in the lag compensator for ΔT specified in the COLR.

ΔT_0 is the loop specific indicated ΔT at RTP, °F.

K_4 is specified in the COLR.

K_5 is specified in the COLR.

Table 3.3.1-1 (page 9 of 9)
Reactor Trip System Instrumentation

Note 4 (Unit 2): Overpower ΔT (Continued)

$\frac{\tau_7 S}{1+\tau_7 S}$ is the function generated by the rate-lag compensator for T_{avg}.

τ_7 is the time constant utilized in the rate-lag compensator for T_{avg} specified in the COLR.

$\frac{1}{1+\tau_6 S}$ is the function generated by the lag compensator on measured T_{avg}.

τ_6 is the time constant utilized in the lag compensator for T_{avg} specified in the COLR.

K_6 is specified in the COLR.

T is measured RCS average temperature, °F.

T" is T_{avg} at RTP specified in the COLR.

S is the Laplace transform operator, sec^{-1}.

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 channel or train inoperable.	B.1 Restore channel or train to OPERABLE status.	48 hours
	OR	
	B.2.1 Be in MODE 3.	54 hours
	AND	
	B.2.2 Be in MODE 5.	84 hours
C. One train inoperable.	**- NOTE -** One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.	
	C.1 Restore train to OPERABLE status.	24 hours
	OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.2.1 Be in MODE 3.	30 hours
	AND	
	C.2.2 Be in MODE 5.	60 hours
D. One channel inoperable.	- NOTE - The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.	
	D.1 Place channel in trip.	72 hours
	OR	
	D.2.1 Be in MODE 3.	78 hours
	AND	
	D.2.2 Be in MODE 4.	84 hours
E. One Containment Pressure channel inoperable.	- NOTE - One channel may be bypassed for up to 12 hours for surveillance testing.	
	E.1 Place channel in bypass.	72 hours
	OR	
	E.2.1 Be in MODE 3.	78 hours
	AND	
	E.2.2 Be in MODE 4.	84 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One channel or train inoperable.	F.1 Restore channel or train to OPERABLE status.	48 hours
	OR	
	F.2.1 Be in MODE 3.	54 hours
	AND	
	F.2.2 Be in MODE 4.	60 hours
G. One train inoperable.	- NOTE - One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.	
	G.1 Restore train to OPERABLE status.	24 hours
	OR	
	G.2.1 Be in MODE 3.	30 hours
	AND	
	G.2.2 Be in MODE 4.	36 hours
H. One channel inoperable.	- NOTE - The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.	
	H.1 Place channel in trip.	72 hours
	OR	
	H.2 Be in MODE 3.	78 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. One Main Feedwater Pumps trip channel inoperable.	I.1 Restore channel to OPERABLE status.	48 hours
	OR	
	I.2 Be in MODE 3.	54 hours
J. One channel inoperable.	- NOTE - One channel may be bypassed for up to 12 hours for surveillance testing.	
	J.1 Place channel in bypass.	72 hours
	OR	
	J.2.1 Be in MODE 3.	78 hours
	AND	
	J.2.2 Be in MODE 5.	108 hours
K. One or more channels inoperable.	K.1 Verify interlock is in required state for existing unit condition.	1 hour
	OR	
	K.2.1 Be in MODE 3.	7 hours
	AND	
	K.2.2 Be in MODE 4.	13 hours

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
SR 3.3.2.2	Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.3	Perform MASTER RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.4	Perform COT.	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

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.2.6	Perform SLAVE RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.7	--- **- NOTE -** Verification of setpoint not required. --- Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.8	--- - NOTE - This Surveillance shall include verification that the time constants are adjusted to the prescribed values. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.9	--- - NOTE - Not required to be performed for the turbine driven AFW pump until 24 hours after SG pressure is ≥ 600 psig. --- Verify ESFAS RESPONSE TIMES are within limit.	In accordance with the Surveillance Frequency Control Program

Table 3.3.2-1 (page 1 of 7)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
1. Safety Injection						
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.7	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.6	NA	NA
c. Containment Pressure - High	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.4[(e)(f)] SR 3.3.2.8[(e)(f)] SR 3.3.2.9	≤ 5.33 psig	≤ 5.3 psig
d. Pressurizer Pressure - Low	1,2,3[(a)]	3	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.8 SR 3.3.2.9	≥ 1841 psig	≥ 1852 psig
e. Steam Line Pressure - Low	1,2,3[(a)]	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.8 SR 3.3.2.9	≥ 495.8 psig with time constant τ_1 ≥ 50 secs and τ_2 ≤ 5 secs	≥ 494 psig with time constant τ_1 ≥ 50 secs and τ_2 ≤ 5 secs
2. Containment Spray Systems						
a. Quench Spray						
(1) Manual Initiation	1,2,3,4	2 per train, 2 trains	B	SR 3.3.2.7	NA	NA

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

(e) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

(f) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the Nominal Trip Setpoint, or a value that is more conservative than the Nominal Trip Setpoint; otherwise, the channel shall be declared inoperable. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined as-found acceptance criteria band, and the as-left setpoint tolerance band are specified in a document incorporated by reference into the Updated Final Safety Analysis Report.

Table 3.3.2-1 (page 2 of 7)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
2. Containment Spray Systems						
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.6	NA	NA
(3) Containment Pressure - High High	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.4(e)(f) SR 3.3.2.8(e)(f) SR 3.3.2.9	≤ 11.43 psig	≤ 11.4 psig
b. Recirculation Spray						
(1) Automatic Actuation Logic	1,2,3	2 trains	F	SR 3.3.2.2 SR 3.3.2.3	NA	NA
(2) Refueling Water Storage Tank (RWST) Level Low	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.4(e)(f) SR 3.3.2.8(e)(f)	≥ 27' 4" and ≤ 27' 11"	≥ 32' 8" and ≤ 32' 10"
Coincident with						
Containment Pressure High High	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.4(e)(f) SR 3.3.2.8(e)(f)	≤ 11.43 psig	≤ 11.4 psig

(e) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

(f) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the Nominal Trip Setpoint, or a value that is more conservative than the Nominal Trip Setpoint; otherwise, the channel shall be declared inoperable. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined as-found acceptance criteria band, and the as-left setpoint tolerance band are specified in a document incorporated by reference into the Updated Final Safety Analysis Report.

Table 3.3.2-1 (page 3 of 7)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
3. Containment Isolation						
a. Phase A Isolation						
(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.7	NA	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.6	NA	NA
(3) Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
b. Phase B Isolation						
(1) Manual Initiation	1,2,3,4	2 per train, 2 trains	B	SR 3.3.2.7	NA	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.6	NA	NA
(3) Contain-ment Pressure - High High	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.4(e)(f) SR 3.3.2.8(e)(f) SR 3.3.2.9	≤ 11.43 psig	≤ 11.4 psig

(e) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

(f) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the Nominal Trip Setpoint, or a value that is more conservative than the Nominal Trip Setpoint; otherwise, the channel shall be declared inoperable. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined as-found acceptance criteria band, and the as-left setpoint tolerance band are specified in a document incorporated by reference into the Updated Final Safety Analysis Report.

Table 3.3.2-1 (page 4 of 7)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
4. Steam Line Isolation						
a. Manual Initiation (Only applicable to Unit 2)	1,2$^{(b)}$, 3$^{(b)}$	2 per train, 2 trains	F	SR 3.3.2.7	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2$^{(b)}$, 3$^{(b)}$	2 trains	G	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.6	NA	NA
c. Containment Pressure - Intermediate High High	1,2$^{(b)}$, 3$^{(b)}$	3	D	SR 3.3.2.1 SR 3.3.2.4$^{(e)(f)}$ SR 3.3.2.8$^{(e)(f)}$ SR 3.3.2.9	$\leq$ 7.33 psig	$\leq$ 7.3 psig
d. Steam Line Pressure						
(1) Low	1,2$^{(b)}$, 3$^{(a)(b)}$	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.8 SR 3.3.2.9	$\geq$ 495.8 psig with time constant τ_1 $\geq$ 50 secs and $\tau_2 \leq$ 5 secs	$\geq$ 494 psig with time constant τ_1 $\geq$ 50 secs and $\tau_2 \leq$ 5 secs
(2) Negative Rate - High	3$^{(b)(c)}$	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.8 SR 3.3.2.9	$\leq$ 104.2 psi with a time constant $\geq$ 50 secs	$\leq$ 103.6 psi with a time constant $\geq$ 50 secs

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

(b) Except when all MSIVs are closed and de-activated.

(c) Below the P-11 (Pressurizer Pressure) interlock when SI on steam line pressure low is blocked.

(e) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

(f) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the Nominal Trip Setpoint, or a value that is more conservative than the Nominal Trip Setpoint; otherwise, the channel shall be declared inoperable. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined as-found acceptance criteria band, and the as-left setpoint tolerance band are specified in a document incorporated by reference into the Updated Final Safety Analysis Report.

Table 3.3.2-1 (page 5 of 7)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
5. Turbine Trip and Feedwater Isolation						
a. Automatic Actuation Logic and Actuation Relays	1,2(d), 3(d)	2 trains	G	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.6	NA	NA
b. SG Water Level - High High (P-14)	1,2(d), 3(d)	3 per SG	D	SR 3.3.2.1 SR 3.3.2.4(e)(f) SR 3.3.2.8(e)(f) SR 3.3.2.9	≤ 90.2%	≤ 92.7%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6. Auxiliary Feedwater						
a. Automatic Actuation Logic and Actuation Relays	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.6	NA	NA
b. SG Water Level - Low Low	1,2,3	3 per SG	D	SR 3.3.2.1 SR 3.3.2.4(e)(f) SR 3.3.2.8(e)(f) SR 3.3.2.9	≥ 19.1%	≥ 20%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					

(d) Except when all Main Feedwater Lines are isolated by either closed and deactivated MFIVs, or MFRVs and associated bypass valves, or closed manual valves.

(e) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

(f) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the Nominal Trip Setpoint, or a value that is more conservative than the Nominal Trip Setpoint; otherwise, the channel shall be declared inoperable. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined as-found acceptance criteria band, and the as-left setpoint tolerance band are specified in a document incorporated by reference into the Updated Final Safety Analysis Report.

Table 3.3.2-1 (page 6 of 7)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
6. Auxiliary Feedwater						
d. Undervoltage Reactor Coolant Pump	1,2	1 per bus	H	SR 3.3.2.5 SR 3.3.2.8 SR 3.3.2.9	≥ 2962 V	≥ 2962 V
e. Trip of all Main Feedwater Pumps	1,2	1 per pump	I	SR 3.3.2.7 SR 3.3.2.9	NA	NA
7. Automatic Switchover to Containment Sump						
a. Automatic Actuation Logic	1,2,3,4	2 trains	B	SR 3.3.2.2 SR 3.3.2.3	NA	NA
b. Refueling Water Storage Tank (RWST) Level Extreme Low	1,2,3,4	4	J	SR 3.3.2.1 SR 3.3.2.4[(e)(f)] SR 3.3.2.8[(e)(f)]	≥ 13' 9" and ≤ 14' 4"	≥ 31' 8" and ≤ 31' 10"
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					

(e) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

(f) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the Nominal Trip Setpoint, or a value that is more conservative than the Nominal Trip Setpoint; otherwise, the channel shall be declared inoperable. The Nominal Trip Setpoint and the methodology used to determine the Nominal Trip Setpoint, the predefined as-found acceptance criteria band, and the as-left setpoint tolerance band are specified in a document incorporated by reference into the Updated Final Safety Analysis Report.

Table 3.3.2-1 (page 7 of 7)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
8. ESFAS Interlocks						
a. Reactor Trip, P-4	1,2,3	1 per train, 2 trains	F	SR 3.3.2.7	NA	NA
b. Pressurizer Pressure, P-11	1,2,3	3	K	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.8	≤ 2004 psig	≤ 2004 psig
c. T_{avg} - Low Low, P-12	1,2,3	1 per loop	K	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.8	≥ 540.5°F	≥ 540.5°F

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. 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 5.6.5.	Immediately
C. One or more Functions with two or more required channels inoperable.	C.1 Restore all but one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3-1 for the Function.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3-1.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.	6 hours 12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3-1.	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTE -

SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM instrumentation Function in Table 3.3.3-1, except as noted in SR 3.3.3.2.

	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	**- NOTES -** 1. Neutron detectors are excluded from CHANNEL CALIBRATION. 2. Not applicable to the Penetration Flow Path Containment Isolation Valve Position Function. Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.3	**- NOTE -** Only applicable to the Penetration Flow Path Containment Isolation Valve Position Function. Perform TADOT.	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 D.1
1.	Power Range Neutron Flux	2(g)	E
2.	Intermediate Range Neutron Flux	2(g)	E
3.	Source Range Neutron Flux	2(f)	E
4.	Reactor Coolant System (RCS) Hot Leg Temperature (Wide Range)	2	E
5.	RCS Cold Leg Temperature (Wide Range)	2	E
6.	RCS Pressure (Wide Range)	2	E
7.	Reactor Vessel Water Level	2	**F**
8.	Containment Sump Water Level (Wide Range)	2	E
9.	Containment Pressure (Wide Range)	2	E
10.	Containment Area Radiation (High Range)	2	**F**
11.	Pressurizer Water Level	2	E
12.	Steam Generator (SG) Water Level (Wide Range)	3	E
13.	SG Pressure		
	a) SG "A"	2	E
	b) SG "B"	2	E
	c) SG "C"	2	E
14.	Primary Plant Demineralized Water Storage Tank Level	2	E
15.	Refueling Water Storage Tank Level (Wide Range)	2	E
16.	Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path(a)(b)	E
17.	Core Exit Temperature		
	a) Quadrant 1	2(c)	E
	b) Quadrant 2	2(c)	E
	c) Quadrant 3	2(c)	E
	d) Quadrant 4	2(c)	E
18.	Secondary Heat Sink Indication		
	a) SG "A"	2(d)	E
	b) SG "B"	2(d)	E
	c) SG "C"	2(d)	E
19.	High Head SI Automatic Injection Header Flow	1	B(e)

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

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

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

(c) A channel consists of two core exit thermocouples (CETs).

(d) The required channels may be satisfied by using any combination of SG Water Level (Narrow Range) channels and Auxiliary Feedwater Flow channels such that 2 channels are OPERABLE for each SG.

(e) Condition B contains the appropriate Action for Function(s) with one required channel.

(f) Source Range neutron detectors are not required to be energized above the P-6 Intermediate Range Neutron Flux Interlock.

(g) Not required in MODE 3.

3.3 INSTRUMENTATION

3.3.4 Remote Shutdown System

LCO 3.3.4 The Remote Shutdown System 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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.2	-- **- NOTE -** Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION for each required indication instrumentation channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.3	Verify each required control circuit and transfer switch is capable of performing the intended function.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

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

LCO 3.3.5 The DG Start and Bus Separation instrumentation specified in Table 3.3.5-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

- NOTE -

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels inoperable.	A.1 Enter the applicable Condition(s) referenced in Table 3.3.5-1 for the affected channel(s).	Immediately
B. One or more Functions with one channel per bus inoperable.	--- **- NOTE -** The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels provided the corresponding instrument channels, electrical bus, and DG in the other train are OPERABLE. ---	
	B.1 Place channel in trip.	72 hours
C. One or more Functions with two channels per bus inoperable.	--- **- NOTE -** Functions 1 and 2 may be bypassed for up to 1 hour while starting the “A” RCP provided the corresponding instrument channels, electrical bus, and DG in the other train are OPERABLE. ---	
	C.1 Restore one channel per bus to OPERABLE status.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more Functions with one channel per bus inoperable.	-- **- NOTE -** Functions 1 and 2 may be bypassed for up to 1 hour while starting the “A” RCP provided the corresponding instrument channels, electrical bus, and DG in the other train are OPERABLE. --	
	D.1 Restore inoperable channel to OPERABLE status.	1 hour
E. Required Action and associated Completion Time not met.	E.1 Enter applicable Condition(s) and Required Action(s) for the associated DG made inoperable by LOP DG start or Bus Separation instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.5.1	-- **- NOTE -** Verification of setpoint is not required. -- Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3	Verify ESF RESPONSE TIMES are within limit.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5-1 (page 1 of 1)
Loss of Power Diesel Generator Start and Bus Separation Instrumentation

FUNCTION	REQUIRED CHANNELS PER BUS	CONDITIONS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
Loss of Voltage				
1. 4160 V Emergency Bus DG start	1	D, E	≥ 2962 V with a time delay of < 0.9 seconds	≥ 2962 V with a time delay of 0.33 ± 0.03 seconds
2. 4160 V Emergency Bus Bus Separation	1 (Unit 1) 2 (Unit 2)	D,E (Unit 1) B,C,E (Unit 2)	≥ 2962 V with a time delay of 1.0 ± 0.1 seconds	≥ 2962 V with a time delay of 1.0 ± 0.1 seconds
Degraded Voltage				
3. 4160 V Emergency Bus Bus Separation	2	B,C,E	≥ 3885.4 V with a time delay of 90 ± 5.0 seconds	≥ 3873 V with a time delay of 90 ± 5.0 seconds
4. 480 V Emergency Bus Bus Separation	2	B,C,E	≥ 448.3 V with a time delay of 90 ± 5.0 seconds	≥ 446.9 V with a time delay of 90 ± 5.0 seconds

Table 3.3.5-1 (page 1 of 1)
Loss of Power Diesel Generator Start and Bus Separation Instrumentation

FUNCTION	REQUIRED CHANNELS PER BUS	CONDITIONS	UNIT 1 ALLOWABLE VALUE	UNIT 2 ALLOWABLE VALUE
Loss of Voltage				
1. 4160 V Emergency Bus DG start	1	D, E	≥ 3224 V with a time delay of < 0.9 seconds	≥ 3328 V with a time delay of 0.33 ± 0.03 seconds
2. 4160 V Emergency Bus Bus Separation	1 (Unit 1) 2 (Unit 2)	D,E (Unit 1) B,C,E (Unit 2)	≥ 3224 V with a time delay of 1.0 ± 0.1 seconds	≥ 3328 V with a time delay of 1.0 ± 0.1 seconds
Degraded Voltage (without safety injection signal)				
3. 4160 V Emergency Bus Bus Separation	2	B,C,E	≥ 3885.4 V with a time delay of 90 ± 5.0 seconds	≥ 3873 V with a time delay of 90 ± 5.0 seconds
4. 480 V Emergency Bus Bus Separation	2	B,C,E	≥ 448.3 V with a time delay of 90 ± 5.0 seconds	≥ 446.9 V with a time delay of 90 ± 5.0 seconds
Degraded Voltage (with safety injection signal)				
5. 4160 V Emergency Bus Bus Separation	2	B,C,E	≥ 3885.4 V with a time delay of 4.00 ± 0.18 seconds	≥ 3873 V with a time delay of 4.00 ± 0.18 seconds
6. 480 V Emergency Bus Bus Separation	2	B,C,E	≥ 448.3 V with a time delay of 4.00 ± 0.18 seconds	≥ 446.9 V with a time delay of 4.00 ± 0.18 seconds

3.3 INSTRUMENTATION

3.3.6 Unit 2 Containment Purge and Exhaust Isolation Instrumentation

The requirement for the Unit 2 Containment Purge and Exhaust Isolation Instrumentation is deleted.

3.3 INSTRUMENTATION

3.3.7 Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation

LCO 3.3.7 The CREVS 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 Functions with one channel or train inoperable.	A.1 Place one CREVS train in emergency pressurization mode of operation.	7 days
B. One or more Functions with two channels or two trains inoperable.	B.1 Place one CREVS train in emergency pressurization mode of operation.	Immediately
	<u>AND</u>	
	B.2 Enter applicable Conditions and Required Actions of LCO 3.7.10, "CREVS," for one CREVS train made inoperable by inoperable CREVS actuation instrumentation.	Immediately
C. Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	C.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

- NOTE -

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

	SURVEILLANCE	FREQUENCY
SR 3.3.7.1	------------------------------ **- NOTE -** Verification of setpoint is not required. ------------------------------ Perform TADOT.	In accordance with the Surveillance Frequency Control Program

Table 3.3.7-1 (page 1 of 1)
CREVS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
1. Manual Initiation	1, 2, 3, 4	2 trains	SR 3.3.7.1
2. Containment Isolation - Phase B	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.b, for all initiation functions and requirements.		

3.3 INSTRUMENTATION

3.3.8 Boron Dilution Detection Instrumentation

LCO 3.3.8 One Source Range channel shall be OPERABLE.

APPLICABILITY: MODES 3, 4, and 5 with all rods fully inserted and without rod withdrawal capability.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required channel inoperable.	A.1 ------------------------------------ **- NOTE -** Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. ------------------------------------ Suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>	
	A.2.1 Restore inoperable channel to OPERABLE status.	1 hour
	<u>OR</u>	
	A.2.2.1 Close unborated water source isolation valves.	1 hour
	<u>AND</u>	
	A.2.2.2 Perform SR 3.1.1.1.	1 hour <u>AND</u> 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
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 $\geq$ 261,600 gpm and greater than or equal to the limit specified in the COLR.

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 ≥ 261,600 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 7 days after ≥ 95% RTP. ---------- Verify by precision heat balance that RCS total flow rate is ≥ 261,600 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 the PTLR.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------------------------------- **- NOTE -** Required Action A.2 shall be completed whenever this Condition is entered. ----------------------------------- Requirements of LCO not met in MODE 1, 2, 3, or 4.	A.1 Restore parameter(s) to within limits. <u>AND</u> 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. <u>AND</u> B.2 Be in MODE 5 with RCS pressure < 500 psig.	6 hours 36 hours
C. ----------------------------------- **- NOTE -** Required Action C.2 shall be completed whenever this Condition is entered. ----------------------------------- Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.	C.1 Initiate action to restore parameter(s) to within limits. <u>AND</u> C.2 Determine RCS is acceptable for continued operation.	Immediately Prior to entering MODE 4

SURVEILLANCE REQUIREMENTS

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops - MODES 1 and 2

LCO 3.4.4 Three 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 SDM of LCO 3.1.1; and

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

APPLICABILITY: MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One 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	Restore required RCS loop to operation.	1 hour
	<u>OR</u>		
	C.2	Place the Rod Control System in a condition incapable of rod withdrawal.	1 hour
D. Two required RCS loops inoperable. <u>OR</u> No RCS loops 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 SDM 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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.5.2	Verify steam generator secondary side water levels are ≥ 28% (Unit 1), ≥ 15.5% (Unit 2) for required RCS loops.	In accordance with the Surveillance Frequency Control Program
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 not in operation.	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 SDM of LCO 3.1.1; and

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

2. The first RCP in a non-isolated loop shall not be started with any non-isolated RCS cold leg temperature ≤ the enable temperature specified in the PTLR unless the secondary side water temperature of each steam generator (SG) in a non-isolated loop is < 50°F above each of the non-isolated 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. <u>AND</u> A.2 --------------------------------- **- NOTE -** Only required if RHR loop is OPERABLE. --------------------------------- Be in MODE 5.	Immediately 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 SDM 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 ≥ 28% (Unit 1), ≥ 15.5% (Unit 2) 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 not in operation.	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 one steam generator (SG) shall be ≥ 28% (Unit 1), ≥ 15.5% (Unit 2).

- 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 SDM of LCO 3.1.1; 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. The first RCP in a non-isolated loop shall not be started with one or more non-isolated RCS cold leg temperatures ≤ the enable temperature specified in the PTLR unless the secondary side water temperature of each SG in a non-isolated loop is < 50°F above each of the non-isolated 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 one or more RCS Loops Unisolated and 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 SG secondary side water level to within limit.	Immediately Immediately
B. Required SG 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 SG 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 SDM 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 ≥ 28% (Unit 1), ≥ 15.5% (Unit 2) in required SG.	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 not in operation.	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 ≤ 15 minutes when switching from one loop to another provided:

   a. The core outlet temperature is maintained > 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 SDM of LCO 3.1.1; 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 all RCS Loops Isolated or Unisolated 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. <u>OR</u> 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 SDM of LCO 3.1.1.	Immediately
	<u>AND</u>		
	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 not in operation.	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 sets of OPERABLE pressurizer heaters with each set consisting of ≥ 150 kW capacity and powered from an emergency bus.

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 required set of pressurizer heaters inoperable.	B.1	Restore required set of pressurizer 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 required set of pressurizer 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 $\geq$ 2410.5 psig and $\leq$ 2559.5 psig (Unit 1) $\geq$ 2410.5 psig and $\leq$ 2524.7 psig (Unit 2).

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures > the enable temperature specified in the PTLR.

- 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. <u>OR</u> Two or more pressurizer safety valves inoperable.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4 with any RCS cold leg temperatures $\leq$ the enable temperature specified in the PTLR.	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 two PORVs inoperable and not capable of being manually cycled.	B.1	Close associated block valves.	1 hour
	AND		
	B.2	Remove power from associated block valves.	1 hour
	AND		
	B.3	- NOTE - Required Action B.3 is only applicable if two PORVs are inoperable.	
		Restore one PORV to OPERABLE status or capable of being manually cycled.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One block valve inoperable.	-- **- NOTE -** Required Actions C.1, C.2.1, and C.2.2 do not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2. --	
	C.1 Close the block valve.	1 hour
	OR	
	C.2.1 Place associated PORV in manual control.	1 hour
	AND	
	C.2.2 Restore block valve to OPERABLE status.	72 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3.	6 hours
	AND	
	D.2 Be in MODE 4.	12 hours
E. Three PORVs inoperable and not capable of being manually cycled.	E.1 Close associated block valves.	1 hour
	AND	
	E.2 Remove power from associated block valves.	1 hour
	AND	
	E.3 Be in MODE 3.	6 hours
	AND	
	E.4 Be in MODE 4.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. More than one block valve inoperable.	-- **- NOTE -** Required Actions F.1, F.2, and F.3 do not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2. --		
	F.1	Place associated PORVs in manual control.	1 hour
	<u>AND</u>		
	F.2	----------------------------------- **- NOTE -** Required Action F.2 is only applicable if three block valves are inoperable. ----------------------------------- Restore one block valve to OPERABLE status.	2 hours
	<u>AND</u>		
	F.3	----------------------------------- **- NOTE -** Required Action F.3 is applicable if two block valves are inoperable. ----------------------------------- Restore one block valve to OPERABLE status.	72 hours
G. Required Action and associated Completion Time of Condition F not met.	G.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	G.2	Be in MODE 4.	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 3.4.11.2.1	-- **- NOTE -** Only required for Unit 1. -- Perform a complete cycle of each PORV using: a) The normal air supply system, and b) The backup nitrogen supply system.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.2.2	-- **- NOTE -** Only required for Unit 2. -- Perform a complete cycle of each PORV.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Overpressure Protection System (OPPS)

LCO 3.4.12 The OPPS shall be OPERABLE with:

a. A maximum of one charging pump capable of injecting into the RCS,

b. The accumulators isolated,

c. One of the following pressure relief capabilities:

   1. Two power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR, or

   2. The RCS depressurized and an RCS vent of ≥ 2.07 square inches (Unit 1), ≥ 3.14 square inches (Unit 2), and

d. For Unit 1 only, the ECCS automatic high head safety injection (HHSI) flow path isolated.

- NOTES -

1. Two charging pumps may be made capable of injecting for ≤ 1 hour for pump swap operations.

2. Accumulator may be unisolated when 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 the PTLR.

3. The Unit 1 ECCS automatic HHSI flow path may be unisolated for flow testing or valve stroke testing.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is ≤ the enable temperature specified in the PTLR,
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 or MODE 5.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Two or more charging pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of one charging pump is 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 existing cold leg temperature allowed in the PTLR.	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 > the enable temperature specified in the PTLR.	12 hours
	<u>OR</u>	
	C.2 Depressurize affected accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours
D. One required PORV inoperable in MODE 4.	D.1 Restore required PORV to OPERABLE status.	7 days
E. One required PORV inoperable in MODE 5 or 6.	E.1 Restore required PORV to OPERABLE status.	24 hours
F. ---------- **- NOTE -** Only applicable to Unit 1. ---------- ECCS automatic HHSI flow path not isolated.	F.1 Isolate the ECCS automatic HHSI flow path.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Two required PORVs inoperable. OR Required Action and associated Completion Time of Condition D, E, or F not met. OR OPPS inoperable for any reason other than Condition A, B, C, D, E, or F.	G.1 Depressurize RCS and establish RCS vent of ≥ 2.07 square inches (Unit 1) ≥ 3.14 square inches (Unit 2).	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify a maximum of one charging pump is capable of injecting into the RCS.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.2	Verify each accumulator is isolated.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.3	Verify required RCS vent ≥ 2.07 square inches (Unit 1) ≥ 3.14 square inches (Unit 2).	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.4	Verify PORV block valve is open for each required PORV.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.5	------------------------------- **- NOTE -** Only applicable to Unit 1. ------------------------------- Verify the ECCS automatic HHSI flow path is isolated.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.6	------------------------------- **- NOTE -** Not required to be performed until 12 hours after decreasing RCS cold leg temperature to ≤ the enable temperature specified in the PTLR. ------------------------------- Perform a COT on each required PORV, excluding actuation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.7	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. 1 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	---------- **- NOTE -** Not required to be performed until 12 hours after establishment of steady state operation. ---------- Verify primary to secondary LEAKAGE is $\leq$ 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.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except valves in the residual heat removal (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 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 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.	4 hours
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	-- **- NOTES -** 1. Not required to be performed in MODES 3 and 4. 2. Not required to be performed on the RCS PIVs located in the RHR flow path when in the shutdown cooling mode of operation. 3. The RCS PIV leakage may be verified at a pressure lower than the specified RCS pressure range provided the observed leakage rates are adjusted to the function maximum pressure in accordance with ASME OM Code. 4. Leakage rates > 0.5 gpm/inch diameter but ≤ 5.0 gpm are acceptable if the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by ≥ 50%. -- 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.	Prior to entering MODE 2 after the plant is placed in MODE 5 for refueling <u>AND</u> ---------------------- **- NOTE -** Only applicable to PIVs requiring additional testing as specifically identified in the list of PIVs ---------------------- Prior to entering MODE 2 whenever the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months

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 (level or discharge flow) monitor, and

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

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

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required containment atmosphere radioactivity monitor inoperable.	B.1.1	Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR		
	B.1.2	- NOTE - Not required until 12 hours after establishment of steady state operation.	
		Perform SR 3.4.13.1.	Once per 24 hours
	AND		
	B.2	Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
- NOTE - Only applicable when the containment atmosphere gaseous radiation monitor is the only OPERABLE monitor.			
C. Required containment sump monitor inoperable.	C.1	Analyze grab samples of the containment atmosphere.	Once per 12 hours
	AND		
	C.2	Restore required containment sump monitor to OPERABLE status.	7 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
E. All required monitors inoperable.	E.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 The specific activity of the reactor coolant shall be within limits.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 0.35 μCi/gm (Unit 1), and > 0.10 μCi/gm (Unit 2).	-- **- NOTE -** LCO 3.0.4.c is applicable. --	
	A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1 (Unit 1), and Figure 3.4.16-2 (Unit 2).	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. Gross specific activity of the reactor coolant not within limit.	B.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours
C. Required Action and associated Completion Time of Condition A not met. OR DOSE EQUIVALENT I-131 in the unacceptable region of Figure 3.4.16-1 (Unit 1), and Figure 3.4.16-2 (Unit 2).	C.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify reactor coolant gross specific activity $\leq 100/\bar{E}$ μCi/gm.	In accordance with the Surveillance Frequency Control Program
SR 3.4.16.2	-- **- NOTE -** Only required to be performed in MODE 1. -- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 0.35 μCi/gm (Unit 1), and ≤ 0.10 μCi/gm (Unit 2).	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
SR 3.4.16.3	-- **- NOTE -** Not required to be performed until 31 days after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. -- Determine $\bar{E}$ from a sample taken in MODE 1 after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.	In accordance with the Surveillance Frequency Control Program

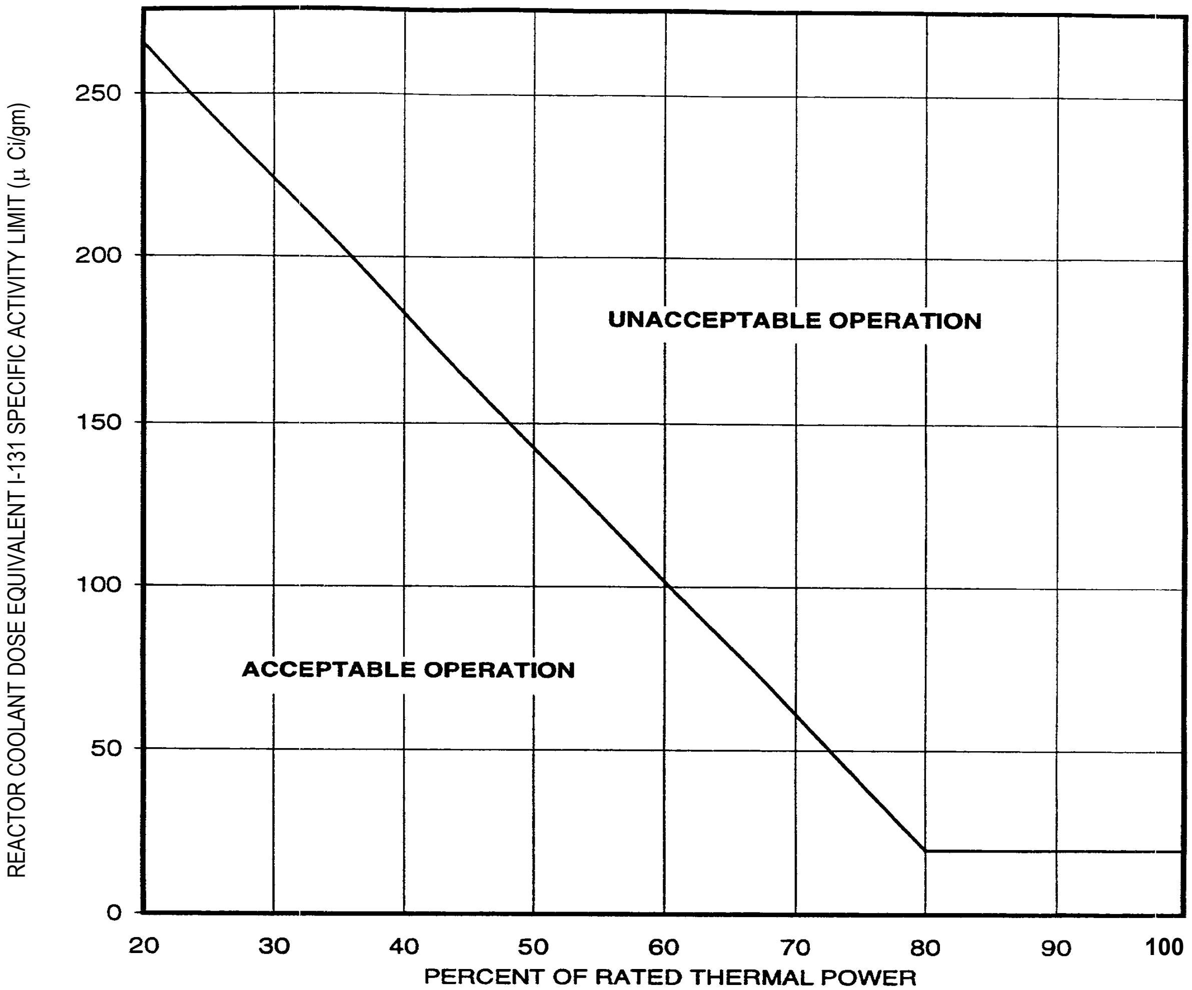

Figure 3.4.16-1 (Page 1 of 1)
Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity
Limit Versus Percent of RATED THERMAL POWER (Unit 1)

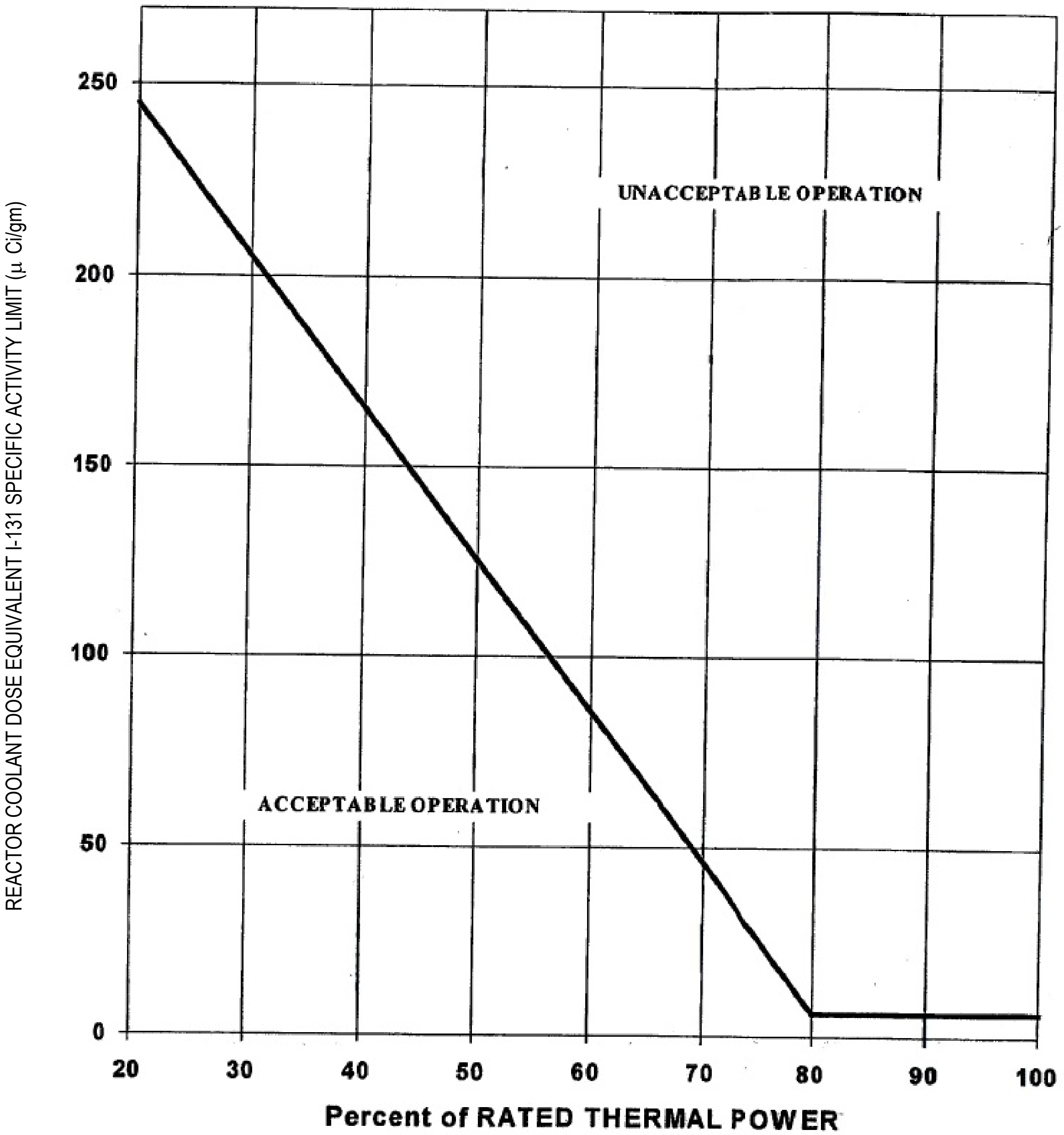

Figure 3.4.16-2 (Page 1 of 1)
Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity
Limit Versus Percent of RATED THERMAL POWER (Unit 2)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 RCS Loop Isolation Valves

LCO 3.4.17 Each RCS hot and cold leg loop isolation valve shall be open with power removed from each isolation valve operator.

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

ACTIONS

-NOTE-

Separate Condition entry is allowed for each RCS loop isolation valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Power available to one or more loop isolation valve operators.	A.1 Remove power from loop isolation valve operators.	30 minutes
B. -------------------------------- **- NOTE -** All Required Actions shall be completed whenever this Condition is entered. -------------------------------- One or more RCS loop isolation valves closed.	B.1 Maintain valve(s) closed. <u>AND</u> B.2 Be in MODE 3. <u>AND</u> B.3 Be in MODE 5.	Immediately 6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1	Verify each RCS loop isolation valve is open and power is removed from each loop isolation valve operator.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.18 RCS Isolated Loop Startup

LCO 3.4.18 Each RCS isolated loop shall remain isolated with the hot and cold leg isolation valves closed:

a. If the boron concentration in the isolated loop is < required to satisfy the applicable requirements of LCO 3.1.1, "SHUTDOWN MARGIN (SDM)" (in MODE 5) and LCO 3.9.1, "Boron Concentration," (in MODE 6), and

b. Until the isolated portion of the loop has been drained and refilled from the refueling water storage tank or RCS.

APPLICABILITY: MODES 5 and 6 when an RCS loop has been isolated > 4 hours or drained.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO requirement(s) not met.	A.1 Isolate affected RCS loop(s) by closing the hot and cold leg isolation valves.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.18.1	Verify the isolated loop has been drained and refilled with water from the refueling water storage tank or RCS.	Prior to opening the isolated loop hot or cold leg isolation valve
SR 3.4.18.2	Verify the isolated loop boron concentration is ≥ the required value to satisfy the applicable requirements of LCO 3.1.1, "SHUTDOWN MARGIN (SDM)" (in MODE 5) and LCO 3.9.1, "Boron Concentration," (in MODE 6).	Within 2 hours prior to opening the isolated loop hot or cold leg isolation valve

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.18.3	Verify the isolated loop hot or cold leg isolation valve is opened.	Within 4 hours following completion of refilling the isolated loop

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.19 RCS Loops - Test Exceptions

LCO 3.4.19 The requirements of LCO 3.4.4, "RCS Loops - MODES 1 and 2," may be suspended with THERMAL POWER < P-7.

APPLICABILITY: MODES 1 and 2 during startup and PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. THERMAL POWER ≥ P-7.	A.1 Open reactor trip breakers.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.19.1	Verify THERMAL POWER is < P-7.	In accordance with the Surveillance Frequency Control Program
SR 3.4.19.2	Perform a COT for each power range neutron flux - low channel, intermediate range neutron flux channel, P-10 and P-13.	Prior to initiation of startup and PHYSICS TESTS
SR 3.4.19.3	Perform an ACTUATION LOGIC TEST on P-7.	Prior to initiation of startup and PHYSICS TESTS

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.20 Steam Generator (SG) Tube Integrity

LCO 3.4.20 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube plugging or repair criteria shall be plugged or repaired[1] 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 or repair criteria and not plugged or repaired[1] 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 or repair[1] 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

(1) SG Tube repair is only applicable to Unit 2.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.20.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.20.2	Verify that each inspected SG tube that satisfies the tube plugging or repair criteria is plugged or repaired[1] in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

[1] SG Tube repair is only applicable to Unit 2.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Accumulators

LCO 3.5.1 Three 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. <u>AND</u> C.2 Reduce RCS pressure to ≤ 1000 psig.	6 hours 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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.2	Verify borated water volume in each accumulator is $\geq$ 6681 gallons and $\leq$ 7645 gallons (Unit 1) $\geq$ 6898 gallons and $\leq$ 8019 gallons (Unit 2).	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify nitrogen cover pressure in each accumulator is $\geq$ 611 psig and $\leq$ 685 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify boron concentration in each accumulator is $\geq$ 2300 ppm and $\leq$ 2600 ppm.	In accordance with the Surveillance Frequency Control Program <u>AND</u> ------------------------ **- NOTE -** Only required to be performed for affected accumulator(s) ------------------------ Once within 6 hours after each solution volume increase of $\geq$ 1% of accumulator volume that is not the result of addition from the refueling water storage tank
SR 3.5.1.5	Verify power is removed from each accumulator isolation valve operator control circuit 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.

- NOTES -

1. In MODE 3, both low head safety injection pump flow paths may be isolated by closing the isolation valves for up to 2 hours to perform pressure isolation valve testing per SR 3.4.14.1.

2. In MODE 3, one of the required charging pumps may be made incapable of injecting to support transition into or from the Applicability of LCO 3.4.12, "Overpressure Protection System (OPPS)," for up to 4 hours or until the temperature of all RCS cold legs exceeds the OPPS enable temperature specified in the PTLR plus 25°F, whichever comes first.

3. For Unit 1 only. In MODE 3, the ECCS automatic high head safety injection (HHSI) flow path may be isolated to support transition into or from the Applicability of LCO 3.4.12, "Overpressure Protection System (OPPS)" for up to 4 hours or until the temperature of all RCS cold legs exceeds the OPPS enable temperature specified in the PTLR plus 25°F, whichever comes first.

4. For Unit 1 only. One ECCS train may use an alternate manual flow path on a one-time basis not to exceed 36 hours while the compensatory measures described in Section 3.3 of Energy Harbor Nuclear Corp. letter L-23-073, dated March 1, 2023, are implemented, if not otherwise inoperable. This allowance expires at 2400 EDT on April 7, 2023.

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	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 control circuit removed.	In accordance with the Surveillance Frequency Control Program

For Unit 1 only

Number	Position	Function
MOV-1SI-890A	Closed	Low head safety injection (LHSI) to Hot Leg
MOV-1SI-890B	Closed	LHSI to Hot Leg
MOV-1SI-890C	Open	LHSI to Cold Leg
MOV-1SI-869A	Closed	HHSI Pump to Hot Leg
MOV-1SI-869B	Closed	HHSI Pump to Hot Leg

For Unit 2 only

Number	Position	Function
2SIS*MOV8889	Closed	LHSI to Hot Legs
2SIS*MOV869A	Closed	HHSI to Hot Leg
2SIS*MOV869B	Closed	HHSI to Hot Leg
2SIS*MOV841	Open	HHSI to Cold Leg
2CHS*MOV8132A	Open	HHSI Pump Discharge Cross Connect
2CHS*MOV8132B	Open	HHSI Pump Discharge Cross Connect
2CHS*MOV8133A	Open	HHSI Pump Discharge Cross Connect
2CHS*MOV8133B	Open	HHSI Pump Discharge Cross Connect

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.2	Verify the HHSI pump minimum flow valve is open with power to the valve operator removed.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	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 3.5.2.4	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 3.5.2.5	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 3.5.2.6	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One ECCS train shall be OPERABLE.

APPLICABILITY: MODE 4.

ACTIONS

- NOTE -

LCO 3.0.4.b is not applicable to ECCS high head subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS train inoperable.	A.1 Restore required ECCS train to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 5.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	The following SRs are applicable for all equipment required to be OPERABLE: SR 3.5.2.1 SR 3.5.2.4 SR 3.5.2.2	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	- NOTE - Only required to be performed when ambient air temperature is < 45°F or > 65°F. Verify RWST borated water temperature is ≥ 45°F and ≤ 65°F.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.2	Verify RWST borated water volume is ≥ 430,500 gallons (Unit 1) ≥ 859,248 gallons (Unit 2).	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 shall be ≤ 28 gpm with charging pump discharge pressure ≥ 2457 psig and the seal injection flow control valve full open.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Seal injection flow not within limit.	A.1	Adjust manual seal injection throttle valves to give a flow within limit.	4 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 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.5.1	---------- **- NOTE -** ---------- Not required to be performed until 4 hours after the Reactor Coolant System pressure stabilizes at ≥ 2215 psig and ≤ 2255 psig. ---------- Verify manual seal injection throttle valves are adjusted to give a flow of ≤ 28 gpm with charging pump discharge pressure ≥ 2457 psig and the seal injection flow control valve full open.	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. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1	Perform required visual examinations and leakage rate testing except for containment air lock testing, in accordance with 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 acceptance criteria.

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

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	
	B.2 Lock an OPERABLE door closed in the affected air lock.	24 hours
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	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
	<u>AND</u>		
	C.2	Verify a door is closed in the affected air lock.	1 hour
	<u>AND</u>		
	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
	<u>AND</u>		
	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) except for 42-inch purge and exhaust valve flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------------------------------- **- NOTE -** Not applicable to penetration flow paths addressed by Condition C. ---------------------------------- 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. AND	4 hours

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 <u>AND</u> Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. 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 one inoperable containment isolation valve connected to a closed system inside containment. ----------------------------------- 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
	<u>AND</u>		
	C.2	---------------------------------- **- NOTES -** 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------------------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	D.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Verify each 42-inch purge and exhaust valve is deactivated in the closed position.	In accordance with the Surveillance Frequency Control Program AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for valves inside containment
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 that is not locked, sealed, or otherwise secured in position, and required to be closed during accident conditions, is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.3.5	Verify each automatic power operated containment isolation valve that is not locked, sealed or otherwise secured in position, and required to be closed during accident conditions, 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 ≥ 12.8 psia and ≤ 14.2 psia.

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 ≥ 70°F and ≤ 108°F.

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 average air temperature is within limits.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.6 Quench Spray (QS) System

LCO 3.6.6 Two QS trains shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	Verify each QS 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 QS pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.6.3	Verify each QS 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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.4	Verify each QS 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 results in the potential for nozzle blockage

3.6 CONTAINMENT SYSTEMS

3.6.7 Recirculation Spray (RS) System

LCO 3.6.7 Four RS subsystems shall be OPERABLE.

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

ACTIONS

- NOTE -

Only applicable to Unit 2. In addition to the applicable Required Actions below, the Conditions and Required Actions of LCO 3.5.2, "ECCS - Operating," or LCO 3.5.3, "ECCS - Shutdown," may also be applicable when subsystem(s) containing RS pumps 2RSS-P21C or 2RSS-P21D are inoperable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
-------------------- **- NOTE -** Only applicable to Unit 1. -------------------- A. One RS subsystem inoperable.	A.1 Restore RS subsystem to OPERABLE status.	7 days
-------------------- **- NOTE -** Only applicable to Unit 1. -------------------- B. Two RS subsystems inoperable in one train.	B.1 Restore one RS subsystem to OPERABLE status.	72 hours
-------------------- **- NOTE -** Only applicable to Unit 2. -------------------- C. One RS subsystem inoperable. OR Two RS subsystems inoperable in the same train.	C.1 Restore inoperable subsystem(s) to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 84 hours
E. Three or more RS subsystems inoperable.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify each RS 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 each RS pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.7.3	Verify on an actual or simulated actuation signal(s): a. Each RS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position, and b. Each RS pump starts automatically.	In accordance with the Surveillance Frequency Control Program
SR 3.6.7.4	Verify each spray nozzle is unobstructed.	Following maintenance that results in the potential for nozzle blockage

3.6 CONTAINMENT SYSTEMS

3.6.8 Containment Sump pH Control System

LCO 3.6.8 The Containment Sump pH Control System shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment Sump pH Control System inoperable.	A.1 Restore Containment Sump pH Control System 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 3.6.8.1	Perform a visual inspection of the six sodium tetraborate storage baskets to verify the following: a. Each storage basket is in place and intact; and, b. Collectively contain $\geq$ 188 cubic feet of sodium tetraborate (Unit 1) $\geq$ 292 cubic feet of sodium tetraborate (Unit 2).	In accordance with the Surveillance Frequency Control Program
SR 3.6.8.2	Verify that a sample from the sodium tetraborate baskets provides adequate pH adjustment of containment sump borated water.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.9 Containment Sump

LCO 3.6.9 The containment sump shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment 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 sump to OPERABLE status.	90 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Containment 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 sump. 2. Enter applicable Conditions and Required Actions of LCO 3.6.7, “Recirculation Spray,” for recirculation spray trains made inoperable by the containment sump. ---------------------------------- Restore the containment 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 3.6.9.1	Verify, by visual inspection, the containment 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 MSSV inoperable and the Moderator Temperature Coefficient (MTC) zero or negative at all power levels.	A.1 Reduce THERMAL POWER to $\leq$ 57% RTP.	4 hours
B. One or more steam generators with two or more MSSVs inoperable. <u>OR</u> One or more steam generators with one MSSV inoperable and the MTC positive at any power level.	B.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. <u>AND</u>	4 hours

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	- NOTE - Only required to be performed in MODES 1 and 2. Verify each required MSSV lift setpoint per Table 3.7.1-2a (Unit 1), Table 3.7.1-2b (Unit 2) in accordance with the INSERVICE TESTING PROGRAM. 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	≤ 50
3	≤ 34
2	≤ 19

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

	VALVE NUMBER	LIFT SETTING	LIFT SETTING TOLERANCES
a.	SV-MS101A, B & C	1075 psig	+1%/-3%
b.	SV-MS102A, B & C	1085 psig	± 3%
c.	SV-MS103A, B & C	1095 psig	± 3%
d.	SV-MS104A, B & C	1110 psig	± 3%
e.	SV-MS105A, B & C	1125 psig	± 3%

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

	VALVE NUMBER	LIFT SETTING	LIFT SETTING TOLERANCES
a.	2MSS-SV101A, B & C	1075 psig	+1%/-3%
b.	2MSS-SV102A, B & C	1085 psig	± 3%
c.	2MSS-SV103A, B & C	1095 psig	± 3%
d.	2MSS-SV104A, B & C	1110 psig	± 3%
e.	2MSS-SV105A, B & C	1125 psig	± 3%

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 Three MSIVs shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	8 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
C. --------------------------------- **- NOTE -** Separate Condition entry is allowed for each MSIV. --------------------------------- One or more MSIVs inoperable in MODE 2 or 3.	C.1 Close MSIV. <u>AND</u> C.2 Verify MSIV is closed.	8 hours Once per 7 days
D. Required Action and associated Completion Time of Condition C 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 3.7.2.1	--- **- NOTE -** Only required to be performed in MODES 1 and 2. --- Verify the isolation time of each MSIV 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 MSIV actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Regulation Valves (MFRVs) and MFRV Bypass Valves

LCO 3.7.3 Three MFIVs, three MFRVs, and MFRV bypass valves shall be OPERABLE.

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

ACTIONS

- NOTE -

Separate Condition entry is allowed for each valve.

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. AND E.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, MFRV, and MFRV bypass valve is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.3.2	Verify each MFIV, MFRV, and MFRV bypass valve actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Dump Valves (ADVs)

LCO 3.7.4 Four ADV lines 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. One required ADV line inoperable.	A.1 Restore required ADV line to OPERABLE status.	7 days
B. Two or more required ADV lines inoperable.	B.1 Restore all but one ADV line to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4 without reliance upon steam generator for heat removal.	6 hours 24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify one complete cycle of each ADV.	In accordance with the Surveillance Frequency Control Program
SR 3.7.4.2	Verify one complete cycle of each ADV block valve.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.4.3	Verify one complete cycle of each individual steam generator isolation valve associated with the Residual Heat Release Valve ADV line.	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 and three feedwater injection headers shall be OPERABLE.

- NOTE -

Only one AFW train, which includes a motor driven pump and the required feedwater injection header(s), 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

- NOTE -

LCO 3.0.4.b is not applicable when entering MODE 1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Turbine driven AFW train inoperable due to one required steam supply inoperable in MODE 1, 2, or 3. <u>OR</u> ----------------------------------- **- NOTE -** Only applicable if MODE 2 has not been entered following refueling. ----------------------------------- One 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 ------------------------------------ **- NOTE -** Only applicable if both supply headers are OPERABLE. ------------------------------------ Realign OPERABLE AFW pumps to separate train supply headers.	2 hours
	AND	
	B.2 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 required steam supply inoperable in MODE 1, 2, or 3. AND One motor driven AFW train inoperable in MODE 1, 2, or 3.	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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time for Condition A, B, or C not met. OR Two AFW trains inoperable in MODE 1, 2, or 3 for reasons other than Condition C. OR One or two feedwater injection headers inoperable in MODE 1, 2, or 3.	D.1 AND D.2	Be in MODE 3. Be in MODE 4.	6 hours 18 hours
E. Three feedwater injection headers inoperable in MODE 1, 2, or 3. OR 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 with a capability of providing flow to the steam generator(s). -------------------------------- Initiate action to restore one AFW train to OPERABLE status with a capability of providing flow to the steam generator(s).	 Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Required AFW train inoperable in MODE 4. OR Required feedwater injection header inoperable in MODE 4.	F.1	Initiate action to restore AFW train to OPERABLE status with a capability of providing flow to the steam generator(s).	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 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 $\geq$ 600 psig in the steam generator. Verify the developed head of each 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. Not required to be met in MODE 4 when steam generator(s) is relied upon for heat removal. 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 $\geq$ 600 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. Not required to be met in MODE 4 when steam generator(s) is relied upon for heat removal. Verify each AFW pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.5.5	Verify proper alignment of the required AFW flow paths by verifying flow from the Primary Plant Demineralized Water Storage Tank to each steam generator.	Prior to entering MODE 2 whenever unit has been in MODE 5, MODE 6, or defueled for a cumulative period of > 30 days

3.7 PLANT SYSTEMS

3.7.6 Primary Plant Demineralized Water Storage Tank (PPDWST)

LCO 3.7.6 The PPDWST 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. PPDWST inoperable.	A.1 Verify by administrative means OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND	
	A.2 Restore PPDWST to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Be in MODE 4, without reliance on steam generator for heat removal.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify the PPDWST level is $\geq$ 130,000 gallons.	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 (RHR) loops made inoperable by CCW. ----------------------------------- Restore CCW train to OPERABLE status.	 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours
--- **- NOTE -** Only applicable in MODE 4 with inadequate CCW flow to the RHR heat exchangers to support the required decay heat removal needed to maintain the unit in MODE 5. --- C. Two CCW trains inoperable.	--- **- NOTE -** LCO 3.0.3 and all other LCO Actions requiring a MODE change from MODE 4 to MODE 5 are suspended until adequate CCW flow to the RHR heat exchangers is established to maintain the unit in MODE 5. --- C.1 Initiate action to restore one train of CCW to OPERABLE status.	 Immediately

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 the RHR System, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.8 Service Water System (SWS)

LCO 3.7.8 Two SWS trains shall be OPERABLE.

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

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
--- **- NOTE -** Only applicable in MODE 4 with inadequate SWS flow to the Component Cooling Water (CCW) heat exchangers to support the required decay heat removal needed to maintain the unit in MODE 5. ---	--- **- NOTE -** LCO 3.0.3 and all other LCO Actions requiring a MODE change from MODE 4 to MODE 5 are suspended until adequate SWS flow to the CCW heat exchangers is established to maintain the unit in MODE 5. ---	
C. Two SWS trains inoperable.	C.1 Initiate action to restore one train of SWS to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	--- **- NOTE -** Isolation of SWS flow to individual components does not render the SWS inoperable. --- Verify each SWS manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.2	Verify each SWS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.3	Verify each SWS 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. <u>AND</u> A.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify water level of UHS is $\geq$ 654 ft mean sea level.	In accordance with the Surveillance Frequency Control Program
SR 3.7.9.2	Verify average water temperature of UHS is $\leq$ 90°F (Unit 1) $\leq$ 89°F (Unit 2).	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.10 Two CREVS 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.

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Two required CREVS trains inoperable for reasons other than Condition B.	D.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.10.1	Operate each CREVS train for ≥ 15 minutes with heaters operating.	In accordance with the Surveillance Frequency Control Program
SR 3.7.10.2	Perform required CREVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.10.3	Verify each CREVS train actuates on an actual or simulated actuation signal.	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 Emergency Air Cooling System (CREACS)

LCO 3.7.11 Two CREACS trains shall be OPERABLE.

- NOTE -

For Unit 1, the heat removal function of CREACS is not required OPERABLE to support fuel movement involving irradiated fuel assemblies.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREACS train inoperable.	A.1 Restore CREACS train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. --------------------------------- **- NOTE-** Only applicable to Unit 1 during movement of irradiated fuel assemblies or fuel assemblies over irradiated fuel assemblies. --------------------------------- Required Action and associated Completion Time of Condition A not met.	C.1	Place OPERABLE CREACS train in operation.	Immediately
	<u>OR</u>		
	C.2	Suspend movement of irradiated fuel assemblies and fuel assemblies over irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. --------------------------------- **- NOTE-** Only applicable to Unit 1 during movement of irradiated fuel assemblies or fuel assemblies over irradiated fuel assemblies. --------------------------------- Two CREACS trains inoperable.	D.1	Suspend movement of irradiated fuel assemblies and fuel assemblies over irradiated fuel assemblies.	Immediately
E. Two CREACS 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	--- **- NOTE -** For Unit 1, the verification of heat removal function of CREACS is not required to support the movement of irradiated fuel. --- Verify each CREACS train has the capability to remove the required heat load and purge the control room atmosphere at the required flow rate.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.12 Supplemental Leak Collection and Release System (SLCRS)

The requirement for the Supplementation Leak Collection and Release System (SLCRS) is deleted.

3.7 PLANT SYSTEMS

3.7.13 Secondary Specific Activity

LCO 3.7.13 The specific activity of the secondary coolant shall be ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131 (Unit 1), and ≤ 0.05 μCi/gm DOSE EQUIVALENT I-131 (Unit 2).

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. <u>AND</u> A.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.13.1	Verify the specific activity of the secondary coolant is ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131 (Unit 1), and ≤ 0.05 μCi/gm DOSE EQUIVALENT I-131 (Unit 2).	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.14 Spent Fuel Pool Storage

LCO 3.7.14 The combination of initial enrichment and burnup of each fuel assembly stored in the spent fuel storage pool shall be within the limits specified in Table 3.7.14-1A (Unit 1); for Unit 2:

Table 3.7.14-1B or in accordance with Specification 4.3.1.1.e, for the fuel assemblies stored in a Boraflex rack,
and

Table 3.7.14-1C, Table 3.7.14-1D, Table 3.7.14-1E, and in accordance with Specification 4.3.1.1.e, for the fuel assemblies stored in a Metamic rack.

- NOTE -

For Unit 2 only, Technical Specification requirements applicable to the fuel storage pool are also applicable to the fuel cask area when a fuel assembly is in the fuel cask area during the installation phase of the Unit 2 reracking project.

APPLICABILITY: Whenever any fuel assembly is stored in 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 to a location that complies with Table 3.7.14-1A (Unit 1); LCO 3.7.14 (Unit 2).	 Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.14.1	Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Table 3.7.14-1A (Unit 1); LCO 3.7.14 (Unit 2).	Prior to storing the fuel assembly in the spent fuel storage pool

Table 3.7.14-1A (page 1 of 1)
(Unit 1 Spent Fuel Pool Storage)

Fuel Assembly Minimum Burnup versus U-235 Initial Enrichment for Storage in Spent Fuel Rack Regions 1, 2, and 3

Nominal Enrichment (w/o U-235)	**Region 3** Assembly Discharge Burnup (MWD/MTU)	**Region 2** Assembly Discharge Burnup (MWD/MTU)	**Region 1** Assembly Discharge Burnup (MWD/MTU)
2.0	0	2585	0
2.348	0	7911 (calculated)	0
2.5	1605	9551	0
3.0	6980	15784	0
3.5	11682	21643	0
4.0	16239	27260	0
4.5	20672	33710	0
5.0	25000	40000	0

NOTES:

Region 2: The data in the above Table may be interpreted linearly or may be calculated by the conservative equation below. This equation provides a linear fit to the design burnup limits.

Minimum Burnup, MWD/MTU = 12,100 * E% - 20,500

Where E = Enrichment ($E \leq 5\%$)

Region 3: The data in the above Table may be interpreted linearly or may be calculated by the conservative equation below. This equation provides a best fit to the design burnup limits.

Minimum Burnup, MWD/MTU = $-480 * (E\%)^2 + 12,900 * E\% - 27,400$

Where E = Enrichment ($E \leq 5\%$)

Table 3.7.14-1B (page 1 of 1)
(Unit 2 Spent Fuel Pool Storage - Boraflex Rack)

Fuel Assembly Minimum Burnup versus Initial Enrichment for the "All-Cell" Storage Configuration

Initial Enrichment (w/o U-235)	Burnup (MWD/MTU)
1.856	0
3.000	13,049
4.000	23,792
5.000	34,404

NOTES:

Any fuel assembly may be loaded at the interface with another configuration.

The required minimum assembly burnup (in MWD/MTU) for an assembly of a given initial enrichment may be calculated using the equation below, where E% is the assembly initial enrichment in weight percent U-235.

Assembly Burnup = $78.116(E\%)^3 - 1002.647(E\%)^2 + 14871.032(E\%) - 24649.599$

Where E = Enrichment ($E \leq 5\%$)

Table 3.7.14-1C (page 1 of 1)
(Unit 2 Spent Fuel Pool Storage - Metamic Rack)

Fuel Assembly Minimum Burnup with Enriched Blankets versus U-235 Initial Enrichment for Storage in Unit 2 Spent Fuel Rack Regions 1, 2, and 3

	Region 3	**Region 2**	**Region 1**
Nominal Enrichment (w/o U-235)	Assembly Discharge Burnup (MWD/MTU)	Assembly Discharge Burnup (MWD/MTU)	Assembly Discharge Burnup (MWD/MTU)
2	640	11140	0
2.5	8020	19530	0
3	14990	27500	0
3.5	21570	35060	0
4	27760	42200	0
4.5	33550	48920	0
5	38940	55230	0

NOTES:

Region 2: The equation below can be used to determine intermediate burnup limits.

Minimum Burnup, MWD/MTU = $- 832.4(E\%)^2 + 20523(E\%) - 26578$

Where E = Enrichment ($E \leq 5\%$)

Region 3: The equation below can be used to determine intermediate burnup limits.

Minimum Burnup, MWD/MTU = $- 793(E\%)^2 + 18315(E\%) - 32814$

Where E = Enrichment ($E \leq 5\%$)

Table 3.7.14-1D (page 1 of 1)
(Unit 2 Spent Fuel Pool Storage - Metamic Rack)

Fuel Assembly Minimum Burnup with Natural Blankets versus U-235 Initial Enrichment for Storage in Unit 2 Spent Fuel Rack Regions 1, 2, and 3

Nominal Enrichment (w/o U-235)	**Region 3** Assembly Discharge Burnup (MWD/MTU)	**Region 2** Assembly Discharge Burnup (MWD/MTU)	**Region 1** Assembly Discharge Burnup (MWD/MTU)
2	650	10990	0
2.5	8060	19270	0
3	15060	27130	0
3.5	21660	34560	0
4	27850	41560	0
4.5	33630	48140	0
5	39010	54280	0

NOTES:

Region 2: The equation below can be used to determine intermediate burnup limits.

Minimum Burnup, MWD/MTU = $-855.3(E\%)^2 + 20418(E\%) - 26425$

Where E = Enrichment ($E \leq 5\%$)

Region 3: The equation below can be used to determine intermediate burnup limits.

Minimum Burnup, MWD/MTU = $-813.4(E\%)^2 + 18481(E\%) - 33063.4$

Where E = Enrichment ($E \leq 5\%$)

Table 3.7.14-1E (page 1 of 1)
(Unit 2 Spent Fuel Pool Storage - Metamic Rack)

Fuel Assembly Minimum Burnup with No Blankets versus U-235 Initial Enrichment for Storage in Unit 2 Spent Fuel Rack Regions 1, 2, and 3

	Region 3	**Region 2**	**Region 1**
Nominal Enrichment (w/o U-235)	Assembly Discharge Burnup (MWD/MTU)	Assembly Discharge Burnup (MWD/MTU)	Assembly Discharge Burnup (MWD/MTU)
2	1030	11190	0
2.5	8170	19460	0
3	15190	27290	0
3.5	22080	34690	0
4	28840	41650	0
4.5	35470	48170	0
5	41970	54260	0

NOTES:

Region 2: The equation below can be used to determine intermediate burnup limits.

Minimum Burnup, MWD/MTU = $-873.1(E\%)^2 + 20467(E\%) - 26250$

Where E = Enrichment ($E \leq 5\%$)

Region 3: The equation below can be used to determine intermediate burnup limits.

Minimum Burnup, MWD/MTU = $-257.4(E\%)^2 + 15449(E\%) - 28840$

Where E = Enrichment ($E \leq 5\%$)

3.7 PLANT SYSTEMS

3.7.15 Fuel Storage Pool Water Level

LCO 3.7.15 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,
During movement of fuel assemblies over irradiated fuel assemblies in the fuel storage pool.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.15.1	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

3.7.16 Fuel Storage Pool Boron Concentration

LCO 3.7.16 The fuel storage pool boron concentration shall be ≥ 1050 ppm (Unit 1), ≥ 2000 ppm (Unit 2).

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 (Unit 1),
When fuel assemblies are stored in the fuel storage pool (Unit 2).

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 ----------------------------------- **- NOTE -** Required Action A.2.2 is only applicable for Unit 1. -----------------------------------	
	Initiate action to perform a fuel storage pool verification.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.16.1	Verify the fuel storage pool boron concentration is within limit.	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 and sequencer timer(s) 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), and

c. Automatic load sequencer timer(s) for each required DG.

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

ACTIONS

- NOTE -

LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for required OPERABLE offsite circuit.	1 hour AND Once per 8 hours thereafter
	AND	
	A.2 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)
	AND	
	A.3 Restore required offsite circuit to OPERABLE status.	72 hours AND 17 days from discovery of failure to meet LCO

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One required DG inoperable.	B.1	Perform SR 3.8.1.1 for the required OPERABLE offsite circuit(s).	1 hour AND Once per 8 hours thereafter
	AND		
	B.2	Declare required feature(s) supported by the inoperable DG inoperable when its required redundant feature(s) is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	AND		
	B.3.1	Determine OPERABLE DG(s) is not inoperable due to common cause failure.	24 hours
	OR		
	B.3.2	Perform SR 3.8.1.2 for OPERABLE DG(s).	24 hours
	AND		
	B.4	Restore required DG to OPERABLE status.	14 days AND 17 days from discovery of failure to meet LCO

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two required offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable. AND C.2 Restore one required offsite circuit to OPERABLE status.	12 hours from discovery of Condition C concurrent with inoperability of redundant required features 24 hours
D. One required offsite circuit inoperable. AND One required DG inoperable.	-- **- NOTE -** Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – Operating," when Condition D is entered with no AC power source to any train. -- D.1 Restore required offsite circuit to OPERABLE status. OR D.2 Restore required DG to OPERABLE status.	 12 hours 12 hours
E. Two required DGs inoperable.	E.1 Restore one required DG to OPERABLE status.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
-- **- NOTE -** Separate Condition entry is allowed for each sequence timer. --	F.1.1	Place the component(s) with the inoperable sequence timer(s) in a condition where it can not be automatically loaded to associated emergency bus.	Immediately
F. One or more required sequence timer(s) inoperable.	<u>AND</u>		
	F.1.2	Enter appropriate Condition and Required Actions for any component that can not be automatically loaded to associated emergency bus.	Immediately
	<u>OR</u>		
	F.2	Declare the associated DG inoperable.	Immediately
G. Required Action and associated Completion Time of Condition A, B, C, D, E, or F not met.	G.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	G.2	Be in MODE 5.	36 hours
H. Three or more required AC sources inoperable.	H.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	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 idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. -- Verify each DG starts from standby conditions and achieves steady state voltage ≥ 4106 V and ≤ 4368 V (Unit 1) ≥ 3994 V and ≤ 4368 V (Unit 2), and frequency ≥ 58.8 Hz and ≤ 61.2 Hz (Unit 1) ≥ 59.9 Hz and ≤ 60.3 Hz (Unit 2).	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.3	-- **- NOTES -** 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2. -- Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 2340 kW and ≤ 2600 kW (Unit 1) ≥ 3814 kW and ≤ 4238 kW (Unit 2).	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.4.1	---------- **- NOTE -** Only applicable to Unit 1. ---------- Verify each DG's day and engine mounted tanks contain a combined total of ≥ 1 hour supply of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4.2	---------- **- NOTE -** Only applicable to Unit 2. ---------- Verify each DG's day tank contains ≥ 1 hour supply of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.5.1	---------- **- NOTE -** Only applicable to Unit 1. ---------- Check and remove accumulated water from each day tank and engine mounted tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.5.2	---------- **- NOTE -** Only applicable to Unit 2. ---------- Check and remove accumulated water from each day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.6	Verify the fuel oil transfer system operates to transfer fuel oil from storage tank to the day tank.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.7	Verify automatic and manual transfer of AC power sources from the unit circuit to system offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.8	--- **- NOTES -** 1. 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 plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 2. If performed with the DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.89. 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 ≤ 66.2 Hz (Unit 1) ≤ 64.4 Hz (Unit 2), b. Within 3 seconds following load rejection, the voltage is ≥ 4106 V and ≤ 4368 V (Unit 1) ≥ 3994 V and ≤ 4368 V (Unit 2), and c. Within 4 seconds following load rejection, the frequency is ≥ 58.8 Hz and ≤ 61.2 Hz (Unit 1) ≥ 59.9 Hz and ≤ 60.3 Hz (Unit 2).	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.9	--- **- 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 plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---	
	Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus except: <u>Unit 1</u> a. Engine overspeed, b. Generator differential current, and c. Generator overcurrent. <u>Unit 2</u> a. Engine overspeed, b. Generator differential current, c. Backup phase fault detection, and d. Generator overexcitation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	-- **- NOTES -** 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. 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 plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 3. If performed with DG synchronized with offsite power, it shall be performed at a power factor $\leq$ 0.89. 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 $\geq$ 8 hours: a. For $\geq$ 2 hours loaded $\geq$ 2750 kW and $\leq$ 2850 kW (Unit 1) $\geq$ 4238 kW and $\leq$ 4535 kW (Unit 2), and b. For the remaining hours of the test loaded $\geq$ 2340 kW and $\leq$ 2600 kW (Unit 1) $\geq$ 3814 kW and $\leq$ 4238 kW (Unit 2).	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	- 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 plant 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.1 Proceeds through its shutdown sequence (Unit 1), c.2 Returns to ready-to-load operation (Unit 2).	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.12	- NOTES - 1. Only applicable to Unit 2. 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 plant 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 returning DG to ready-to-load operation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	-- **- 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 plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. --	
	Verify each automatic load sequence time is within $\pm$ 10% of required value.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	- 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 plant 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 load sequencer, 3. Achieves steady state voltage ≥ 4106 V and ≤ 4368 V (Unit 1) ≥ 3994 V and ≤ 4368 V (Unit 2), 4. Achieves steady state frequency ≥ 60.0 Hz and ≤ 60.4 Hz (Unit 1) ≥ 59.9 Hz and ≤ 60.3 Hz (Unit 2), 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 3.8.1.15	--- **- NOTES -** 1. Only applicable to Unit 2. 2. All DG starts may be preceded by an engine prelube period. ---	
	Verify when started simultaneously from standby condition, each DG achieves: a. In ≤ 10 seconds, voltage ≥ 3994 V and frequency ≥ 59.9 Hz and b. Steady state voltage ≥ 3994 V and ≤ 4368 V, and frequency ≥ 59.9 Hz and ≤ 60.3 Hz.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

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

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

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

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies (Unit 1),
During movement of fuel assemblies over irradiated fuel assemblies (Unit 1).

ACTIONS

- NOTE -

LCO 3.0.3 is not applicable.

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 ----------------------------------- **- NOTE -** Only applicable to Unit 1. ----------------------------------- Suspend movement of irradiated fuel assemblies and movement of fuel assemblies over irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One required DG inoperable.	B.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	B.2	--------------------------------- **- NOTE -** Only applicable to Unit 1. --------------------------------- Suspend movement of irradiated fuel assemblies and movement of fuel assemblies over irradiated fuel assemblies.	Immediately
	AND		
	B.3	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND		
	B.4	Initiate action to restore required DG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.2.1	-- **- NOTES -** 1. The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.8, SR 3.8.1.9, SR 3.8.1.10, SR 3.8.1.11, SR 3.8.1.13, and SR 3.8.1.14. 2. The verification of load sequencer functions in SR 3.8.1.13 and SR 3.8.1.14 is only required to be met for those loads required in the Applicable MODES of LCO 3.8.2. 3. SR 3.8.1.14 is only required to be met with the use of an actual or simulated loss of offsite power signal. --	
	For AC sources required to be OPERABLE, the following SRs of Specification 3.8.1, "AC Sources - Operating," are applicable: SR 3.8.1.1 SR 3.8.1.4.2 SR 3.8.1.9 SR 3.8.1.2 SR 3.8.1.5.1 SR 3.8.1.10 SR 3.8.1.3 SR 3.8.1.5.2 SR 3.8.1.11 SR 3.8.1.4.1 SR 3.8.1.6 SR 3.8.1.13 SR 3.8.1.8 SR 3.8.1.14	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

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

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

- NOTE -

Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel inventory less than a 3 ½ day supply (Unit 1) 7 day supply (Unit 2) and greater than or equal to a 3 day supply (Unit 1) 6 day supply (Unit 2) in storage tank.	A.1 Restore fuel oil inventory to within limits.	48 hours
B. One or more DGs with lube oil inventory less than a 7 day supply and greater than or equal to a 6 day supply.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more DGs with stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates to within limits.	7 days
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One or more DGs with starting air receiver pressure < 165 psig and ≥ 125 psig (Unit 1) < 380 psig and ≥ 285 psig (Unit 2).	E.1	Restore starting air receiver pressure to ≥ 165 psig (Unit 1) ≥ 380 psig (Unit 2).	48 hours
F. Required Action and associated Completion Time not met. <u>OR</u> One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.	F.1	Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains ≥ a 3 ½ day supply of fuel oil (Unit 1) ≥ a 7 day supply of fuel oil (Unit 2).	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify lubricating oil inventory is ≥ a 7 day supply.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.4	Verify DG air start receiver pressure is ≥ 165 psig (Unit 1) ≥ 380 psig (Unit 2).	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	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 Train A and Train B DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two battery chargers on one train inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	<u>AND</u>	
	A.2 Verify battery float current $\leq$ 2 amps.	Once per 12 hours
	<u>AND</u>	
	A.3 Restore battery charger(s) to OPERABLE status.	72 hours
B. One or two batteries on one train inoperable.	B.1 Restore batteries to OPERABLE status.	2 hours
C. One DC electrical power subsystem inoperable for reasons other than Condition A or B.	C.1 Restore DC electrical power subsystem to OPERABLE status.	2 hours
D. Required Action and Associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	D.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify each battery charger supplies ≥ 100 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours. <u>OR</u> Verify each battery charger can recharge the battery to the fully charged state within 24 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	-- **- 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 be performed in MODE 1, 2, 3, or 4. 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

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 One DC electrical power subsystem shall be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies (Unit 1),
During movement of fuel assemblies over irradiated fuel assemblies (Unit 1).

ACTIONS

- NOTE -

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required DC electrical power subsystem inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 ----- **- NOTE -** Only applicable to Unit 1. ----- Suspend movement of irradiated fuel assemblies and movement of fuel assemblies over irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<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>	
	A.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	---------- **- NOTE -** ---------- The following SRs are not required to be performed: SR 3.8.4.2 and SR 3.8.4.3. ---------- For DC sources required to be OPERABLE, the following SRs are applicable: SR 3.8.4.1 SR 3.8.4.2 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 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 two batteries on one train with one or more battery cells float voltage < 2.07 V.	A.1 Perform SR 3.8.4.1.	2 hours
	AND	
	A.2 Perform SR 3.8.6.1.	2 hours
	AND	
	A.3 Restore affected cell voltage ≥ 2.07 V.	24 hours
B. One or two batteries on one train with float current > 2 amps.	B.1 Perform SR 3.8.4.1.	2 hours
	AND	
	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 two batteries on one train 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
	<u>AND</u>	
	C.2 Verify no evidence of leakage.	12 hours
	<u>AND</u>	
	C.3 Restore electrolyte level to greater than or equal to minimum established design limits.	31 days
D. One or two batteries on one train 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. One or more batteries in redundant trains with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one train to within limits.	2 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> One or two batteries on one train with one or more battery cells float voltage < 2.07 V and float current > 2 amps.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.6.1	- NOTE - Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. Verify each battery float current is ≤ 2 amps.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ 2.07 V.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.5	Verify each battery connected cell voltage is ≥ 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 be performed in MODE 1, 2, 3, or 4. 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> 18 months when battery shows degradation, or has reached 85% of the expected life

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The required Train A and Train B inverters shall be OPERABLE.

- NOTE -

One inverter may be disconnected from its associated DC bus for ≤ 24 hours to perform an equalizing charge on its associated battery, provided:

a. The associated AC vital bus is energized from its Class 1E constant voltage source transformers or inverter using internal AC source, and

b. All other AC vital buses are energized from their associated OPERABLE inverters.

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 AC vital bus de-energized. ---------------------------------- Restore inverter to OPERABLE status.	24 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 3.8.7.1	Verify correct inverter voltage and alignment to required AC vital buses.	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.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies (Unit 1),
During movement of fuel assemblies over irradiated fuel assemblies (Unit 1).

ACTIONS

- NOTE -

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 ----- **- NOTE -** Only applicable to Unit 1. ----- Suspend movement of irradiated fuel assemblies and movement of fuel assemblies over irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<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>	
	A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

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

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 Train A and Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more AC electrical power distribution subsystems inoperable.	-- **- NOTE -** Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC trains made inoperable by inoperable power distribution subsystems. --	
	A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours <u>AND</u> 16 hours from discovery of failure to meet LCO
B. One or more AC vital buses inoperable.	B.1 Restore AC vital bus subsystem(s) to OPERABLE status.	2 hours <u>AND</u> 16 hours from discovery of failure to meet LCO

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more DC electrical power distribution subsystems inoperable.	C.1	Restore DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours <u>AND</u> 16 hours from discovery of failure to meet LCO
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	D.2	Be in MODE 5.	36 hours
E. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function.	E.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 AC 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 portion of AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies (Unit 1),
During movement of fuel assemblies over irradiated fuel assemblies (Unit 1).

ACTIONS

- NOTE -

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 ------------------------------ **- NOTE -** Only applicable to Unit 1. ------------------------------ Suspend movement of irradiated fuel assemblies and movement of fuel assemblies over irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	A.2.4 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.5 Declare associated required residual heat removal subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems.	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
	AND	
	A.2 Suspend positive reactivity additions.	Immediately
	AND	
	A.3 Initiate action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.2 Nuclear Instrumentation

LCO 3.9.2 Two source range neutron flux monitors 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.	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

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

The requirement for the Containment Penetrations is deleted.

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.

-NOTES-

1. 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.

2. The required RHR loop may be removed from operation for ≤ 4 hours per 8 hour period during the performance of Ultrasonic In-service Inspection inside the reactor vessel nozzles, provided no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1.

APPLICABILITY: MODE 6 with the water level ≥ 23 ft above the top of 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. <u>AND</u>	Immediately
	A.2 Suspend loading irradiated fuel assemblies in the core. <u>AND</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.3	Initiate action to satisfy RHR loop requirements.	Immediately
	AND		
	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.6.1	Close each penetration providing direct access from the containment atmosphere to the outside atmosphere with a manual or automatic isolation valve, blind flange, or equivalent.	4 hours
	OR		
	A.6.2	Verify each penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.	4 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.9.4.1	-- **- NOTE -** Only required to be met prior to the start of and during operations that cause the introduction of coolant into the RCS with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1. -- Verify one RHR loop is circulating reactor coolant at a flow rate of ≥ 3000 gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.9.4.2	Verify one RHR loop is in operation.	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 train to another provided:

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

   b. No operations are permitted that would cause 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, 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.	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.5.1	Close each penetration providing direct access from the containment atmosphere to the outside atmosphere with a manual or automatic isolation valve, blind flange, or equivalent.	4 hours
	OR		
	B.5.2	Verify each penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	---------- **- NOTE -** Only required to be met prior to the start of and during operations that cause the introduction of coolant into the RCS with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1. ---------- Verify one RHR loop is circulating reactor coolant at a flow rate of ≥ 3000 gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.2	---------- **- NOTE -** Only required to be met when RCS water level is > three feet below the reactor vessel flange. ---------- Verify one RHR loop is circulating reactor coolant at a flow rate of ≥ 1000 gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.3	Verify one RHR loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.4	---------- **- NOTE -** Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	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, During movement of fuel assemblies over irradiated fuel assemblies within the 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. AND A.2 Suspend movement of fuel assemblies over irradiated fuel assemblies within containment.	Immediately 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

3.9 REFUELING OPERATIONS

3.9.7 Decay Time

LCO 3.9.7 The reactor shall be subcritical for ≥ 100 hours.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor subcritical < 100 hours.	A.1 Suspend movement of irradiated fuel assemblies within containment.	Immediately
	AND	
	A.2 Suspend movement of fuel assemblies over irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	The reactor shall be determined to have been subcritical for at least 100 hours by verification of the date and time of subcriticality.	Prior to movement of irradiated fuel assemblies within containment

4.0 DESIGN FEATURES

4.1 Site Location

The Beaver Valley Power Station is located in Shippingport Borough, Beaver County, Pennsylvania, on the south bank of the Ohio River. The site is approximately 1 mile southeast of Midland, Pennsylvania, 5 miles east of East Liverpool, Ohio, and approximately 25 miles northwest of Pittsburgh, Pennsylvania. The Unit 1 exclusion area boundary has a minimum radius of 2000 feet from the center of containment. The Unit 2 exclusion area boundary has a minimum radius of 2000 feet around the Unit No. 1 containment building.

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain 157 fuel assemblies. Each assembly shall consist of a matrix of ZIRLO® or Optimized ZIRLO™ clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.

4.2.2 Control Rod Assemblies

The reactor core shall contain 48 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 U-235 enrichment as specified in LCO 3.7.14, "Spent Fuel Pool Storage,"

b. Unit 1
$K_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.12 of the UFSAR,

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

Unit 2
K_{eff} < 1.0 if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.1 of the UFSAR,

c. Unit 2
$K_{eff} \leq 0.95$ if fully flooded with water borated to 495 ppm, which includes an allowance for uncertainties as described in Section 9.1 of the UFSAR,

d. Unit 1
A nominal center to center distance between fuel assemblies placed in the fuel storage racks of 10.82 inch for Region 1, with 9.02 inch for Regions 2 and 3,

Unit 2
A minimum center to center distance between fuel assemblies placed in the fuel storage racks of 10.4375 inches (Boraflex rack), 9.03 inches (Metamic rack), and

e. Fuel assembly storage shall comply with the requirements of LCO 3.7.14, "Spent Fuel Pool Storage",

Unit 2
Boraflex Rack
New or partially spent fuel assemblies within the limits of Table 3.7.14-1B may be allowed unrestrictive storage in the fuel storage racks, and

New or partially spent fuel assemblies not within the limits of Table 3.7.14-1B will be stored in compliance with NRC approved WCAP-16518-P, "Beaver Valley Unit 2 Spent Fuel Rack Criticality Analysis," Revision 2, July 2007.

Unit 2
Metamic Rack
New or partially spent fuel assemblies within the limits of Table 3.7.14-1C, Table 3.7.14-1D, and Table 3.7.14-1E may be stored in the fuel storage racks, provided:

1. Region 1 storage cells are located on the periphery of each rack (outer row only) and are therefore separated from other Region 1 cells in adjacent racks by the 1.5 inch minimum gap between the racks. Region 1 cells are additionally separated

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

from other Region 1 cells within the same rack by Region 2 cells (including a Region 2 cell in the diagonal direction). Since Region 1 cells are qualified for the storage of fresh fuel, any fuel assembly (fresh or burned) meeting the maximum enrichment requirement may be stored in a Region 1 location,

2. Region 2 cells are located on the rack periphery (outer row) interspaced with (separating) Region 1 cells and are also located in the second row of cells (from the outside of the rack) separating the Region 1 cells from the Region 3 cells,

3. Region 3 cells are located on the interior of the rack and are prohibited from being located in the outer two rows of the rack, and

4. Two empty rows of storage locations shall exist between the fuel assemblies in a Boraflex rack and the fuel assemblies in an adjacent Metamic rack in the fuel storage pool.

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

a. Fuel assemblies having a maximum U-235 enrichment of 5.00 weight percent with a tolerance of + 0.05 weight percent,

b. $K_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.12 of the Unit 1 UFSAR and Section 9.1 of the Unit 2 UFSAR,

c. Unit 1
$K_{eff} \leq 0.98$ if moderated by aqueous foam, which includes an allowance for uncertainties as described in Section 9.12 of the UFSAR,

Unit 2
$K_{eff} \leq 0.95$ if moderated by aqueous foam, which includes an allowance for uncertainties as described in Section 9.1 of the UFSAR, and

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

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

4.3.2 Drainage

Unit 1
The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 750 feet - 10 inches.

Unit 2
The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 750 feet - 10 inches.

4.3.3 Capacity

Unit 1
The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1627 fuel assemblies.

Unit 2
The fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1088 fuel assemblies (Boraflex racks), 1690 fuel assemblies (Metamic racks).

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.

5.0 ADMINISTRATIVE CONTROLS

5.2 Organization

-NOTE-

This TS Section is only applicable to an operating unit. TS Section 5.2A is applicable to a unit for which the certifications of permanent cessation of power operations and of permanent removal of fuel from the reactor vessel is docketed in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2).

5.2.1 Onsite and Offsite Organizations

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

a. Lines of authority, responsibility, and communication shall be defined and established throughout highest management levels, intermediate levels, and all operating organization positions. These relationships shall be documented and updated, as appropriate, in organization charts, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements including the plant-specific titles of those personnel fulfilling the responsibilities of the positions delineated in these Technical Specifications shall be documented in the Unit 2 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 corporate officer with direct responsibility for the plant shall have corporate responsibility for overall plant nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the plant to ensure nuclear safety, and

d. The individuals who train the operating staff, carry out radiation protection, 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 Organization

5.2.2 Unit Staff

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 MODES 1, 2, 3, or 4.

b. Shift crew composition may be less than the minimum requirement of 10 CFR 50.54(m)(2)(i) and 5.2.2.a and 5.2.2.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. An individual qualified in radiation protection procedures shall be on site when fuel is in the reactor. The position may be vacant for not more than 2 hours, in order to provide for unexpected absence, provided immediate action is taken to fill the required position.

d. Deleted.

e. The operations manager or at least one operations middle manager shall hold an SRO license.

f. An individual shall provide advisory technical support to the unit operations shift crew in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit. This individual shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift. A single qualified person can be used to satisfy this position for both units.

5.0 ADMINISTRATIVE CONTROLS

5.2A Organization (Permanently Defueled Unit)

-NOTE-

This TS Section is only applicable to a unit for which the certifications of permanent cessation of power operations and of permanent removal of fuel from the reactor vessel is docketed in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2). TS Section 5.2 is applicable to an operating unit.

5.2A.1 <u>Onsite and Offsite Organizations</u>

Onsite and offsite organizations shall be established for unit staff and corporate management. The onsite and offsite organizations shall include the positions for activities affecting the safe storage and handling of nuclear fuel.

a. Lines of authority, responsibility, and communication shall be defined and established throughout highest management levels, intermediate levels, and all unit organization positions. These relationships shall be documented and updated, as appropriate, in organization descriptions, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements including the plant-specific titles of those personnel fulfilling the responsibilities of the positions delineated in these Technical Specifications shall be documented in the Unit 2 UFSAR,

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

c. A corporate officer with direct responsibility for the unit shall have corporate responsibility for the safe storage and handling of nuclear fuel and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the unit to ensure safe management of nuclear fuel, and

d. The individuals who train the CERTIFIED FUEL HANDLERs, carry out radiation protection, or perform quality assurance functions may report to the appropriate onsite manager; however, these individuals shall have sufficient organizational freedom to ensure their ability to perform their assigned functions.

5.2A Organization (Permanently Defueled Unit)

5.2A.2 Unit Staff

The unit staff organization shall include the following:

a. Each on duty shift shall be composed of at least one shift manager and one NON-CERTIFIED OPERATOR. The NON-CERTIFIED OPERATOR position may be filled by a CERTIFIED FUEL HANDLER.

b. Shift crew composition may be less than the minimum requirement of Specification 5.2A.2.a 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 and the following conditions are met:

   1) No nuclear fuel movements are in progress;

   2) No movement of loads over nuclear fuel is in progress; and

   3) No unmanned shift positions during shift turnover shall be permitted due to an incoming shift crew member being late or absent.

c. An individual qualified in radiation protection procedures shall be on site during movement of nuclear fuel and during the movement of loads over nuclear fuel. 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. At least one person qualified to stand watch in the control room (NON-CERTIFIED OPERATOR or CERTIFIED FUEL HANDLER) shall be present in the control room when nuclear fuel is stored in the spent fuel pool.

e. The shift manager shall be a CERTIFIED FUEL HANDLER.

f. Oversight of nuclear fuel handling operations shall be provided by a CERTIFIED FUEL HANDLER.

5.0 ADMINISTRATIVE CONTROLS

5.3 Unit Staff Qualifications

-NOTE-

This TS Section is only applicable to an operating unit. TS Section 5.3A is applicable to a unit for which the certifications of permanent cessation of power operations and of permanent removal of fuel from the reactor vessel is docketed in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2).

5.3.1 Each member of the unit and radiation protection staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions, except for the following:

- The operations manager as specified in Specification 5.2.2.e,
- The radiation protection manager who shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975, and
- The technical advisory engineering representative who shall have a bachelor's degree or equivalent in a scientific or engineering discipline with specific training in plant design and response analysis of the plant for transients and accidents.
- The licensed operators who shall comply only with the requirements of 10 CFR 55.

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

5.0 ADMINISTRATIVE CONTROLS

5.3A Unit Staff Qualifications (Permanently Defueled Unit)

-NOTE-

This TS Section is only applicable to a unit for which the certifications of permanent cessation of power operations and of permanent removal of fuel from the reactor vessel is docketed in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2). TS Section 5.3 is applicable to an operating unit.

5.3A.1 Each member of the unit and radiation protection staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions, except for the following:

- The shift manager as specified in Specification 5.2A.2.e, and
- The radiation protection manager who shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975.

5.3A.2 The NRC-approved training and retraining program for CERTIFIED FUEL HANDLERs shall be maintained.

5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

-NOTE-

This TS Section is only applicable to an operating unit. TS Section 5.4A is applicable to a unit for which the certifications of permanent cessation of power operations and of permanent removal of fuel from the reactor vessel is docketed in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2).

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 to 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

5.4A Procedures (Permanently Defueled Unit)

-NOTE-

This TS Section is only applicable to a unit for which the certifications of permanent cessation of power operations and of permanent removal of fuel from the reactor vessel is docketed in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2). TS Section 5.4 is applicable to an operating unit.

5.4A.1 Written procedures shall be established, implemented, and maintained covering the following activities:

a. The procedures applicable to the safe storage of nuclear fuel recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978,

b. Quality assurance for effluent and environmental monitoring,

c. Fire Protection Program implementation, and

d. All programs specified in Specification 5.5.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

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

5.5.1 Offsite Dose Calculation Manual (ODCM)

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

b. The ODCM shall also contain the radioactive effluent controls and radiological environmental monitoring activities, and descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Radioactive Effluent Release Reports required by Specification 5.6.1 and Specification 5.6.2.

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, pre-designated alternate, or a pre-designated manager to whom the plant manager has assigned in writing the responsibility for review and approval of specific subjects, 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.

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5.5.2 Radioactive Effluent Controls Program

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

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

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

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

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

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

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

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

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

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

5.5 Programs and Manuals

5.5.2 Radioactive Effluent Controls Program (continued)

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

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

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

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

5.5.3 Component Cyclic or Transient Limit

This program provides controls to track the UFSAR Table 4.1-10 (Unit 1) and UFSAR Table 3.9N-1 (Unit 2), cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.4 Deleted

5.5 Programs and Manuals

5.5.5 Steam Generator (SG) Program

An SG Program for Unit 1 and Unit 2 shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the SG Program for Unit 1 shall include the provisions of Specification 5.5.5.1 and the SG Program for Unit 2 shall include the provisions of Specification 5.5.5.2.

5.5.5.1 Unit 1 SG Program

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. Provisions for 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.

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5.5.5.1 Unit 1 SG Program (continued)

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 also not to exceed 1 gpm per SG, except during a SG tube rupture.

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.

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5.5.5.1 Unit 1 SG Program (continued)

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

5.5.5.2 Unit 2 SG Program

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 or repair of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected, plugged, or repaired to confirm that the performance criteria are being met.

b. Provisions for 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, except for flaws addressed through application of the alternate repair criteria discussed in Specification 5.5.5.2.c.4, 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.

   When alternate repair criteria discussed in Specification 5.5.5.2.c.4 are applied to axially oriented outside diameter stress corrosion cracking indications at tube support plate locations, the probability that one or more of these indications in a SG will burst under postulated main steam line break conditions shall be less than $1x10^{-2}$.

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

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5.5.5.2 Unit 2 SG Program (continued)

SGs and leakage rate for an individual SG. Except during a SG tube rupture, leakage from all sources excluding the leakage attributed to the degradation described in Specification 5.5.5.2.c.4 is also not to exceed 1 gpm per SG.

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

c. Provisions for SG Tube Plugging or Repair Criteria

1. Tubes found by inservice inspection to contain a flaw in a non-sleeved region with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged or repaired except if permitted to remain in service through application of the alternate plugging or repair criteria discussed in Specification 5.5.5.2.c.4 or 5.5.5.2.c.5.

2. Tubes found by inservice inspection to contain a flaw in a sleeve (excluding the sleeve to tube joint) with a depth equal to or exceeding the following percentages of the nominal sleeve wall thickness shall be plugged:

ABB Combustion Engineering TIG welded sleeves	27%
Westinghouse laser welded sleeves	25%
Westinghouse leak limiting Alloy 800 sleeves	Any flaw

3. Tubes with a flaw in a sleeve to tube joint shall be plugged.

4. Tube support plate voltage-based plugging or repair criteria may be applied as an alternative to the 40% depth based criteria of Specification 5.5.5.2.c.1.

Tube Support Plate Plugging Limit is used for the disposition of an Alloy 600 SG tube for continued service that is experiencing predominantly axially oriented outside diameter stress corrosion cracking confined within the thickness of the tube support plates. At tube support plate intersections, the plugging or repair limit is described below:

a) SG tubes, with degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with bobbin voltages less than or equal to 2.0 volts will be allowed to remain in service.

b) SG tubes, with degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than 2.0 volts will be plugged or repaired, except as noted in 5.5.5.2.c.4.c below.

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5.5.5.2 Unit 2 SG Program (continued)

c) SG tubes, with indications of potential degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than 2.0 volts but less than or equal to the upper voltage repair limit (calculated according to the methodology in Generic Letter 95-05 as supplemented) may remain in service if a rotating pancake coil or acceptable alternative inspection does not detect degradation.

d) SG tubes, with indications of potential degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than the upper voltage repair limit (calculated according to the methodology in Generic Letter 95-05 as supplemented) will be plugged or repaired.

e) If an unscheduled mid-cycle inspection is performed, the following mid-cycle repair limits apply instead of the limits specified in 5.5.5.2.c.4.a through 5.5.5.2.c.4.d.

The mid-cycle repair limits are determined from the following equations:

$$V_{MURL} = \frac{V_{SL}}{1.0 + NDE + Gr\left(\frac{CL - \Delta t}{CL}\right)}$$

$$V_{MLRL} = V_{MURL} - (V_{URL} - V_{LRL})\left(\frac{CL - \Delta t}{CL}\right)$$

where:

V_{URL} = upper voltage repair limit
V_{LRL} = lower voltage repair limit
V_{MURL} = mid-cycle upper voltage repair limit based on time into cycle
V_{MLRL} = mid-cycle lower voltage repair limit based on V_{MURL} and time into cycle
Δt = length of time since last scheduled inspection during which V_{URL} and V_{LRL} were implemented
CL = cycle length (the time between two scheduled SG inspections)
V_{SL} = structural limit voltage
Gr = average growth rate per cycle length

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5.5.5.2 Unit 2 SG Program (continued)

NDE = 95-percent cumulative probability allowance for nondestructive examination uncertainty (i.e., a value of 20-percent has been approved by NRC). The NDE is the value provided by the NRC in GL 95-05 as supplemented.

Implementation of these mid-cycle repair limits should follow the same approach as in Specifications 5.5.5.2.c.4.a through 5.5.5.2.c.4.d.

5. The F* methodology, as described below, may be applied to the expanded portion of the tube in the hot-leg or cold-leg tubesheet region as an alternative to the 40% depth based criteria of Specification 5.5.5.2.c.1:

   a) Tubes with no portion of a lower sleeve joint in the hot-leg or cold-leg tubesheet region shall be repaired or plugged upon detection of any flaw identified within 3.0 inches below the top of the tubesheet or within 2.22 inches below the bottom of roll transition, whichever elevation is lower. Flaws located below this elevation may remain in service regardless of size.

   b) Tubes which have any portion of a sleeve joint in the hot-leg or cold-leg tubesheet region shall be plugged upon detection of any flaw identified within 3.0 inches below the lower end of the lower sleeve joint. Flaws located greater than 3.0 inches below the lower end of the lower sleeve joint may remain in service regardless of size.

   c) The F* methodology cannot be applied to the tubesheet region where a laser or TIG welded sleeve has been installed.

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 or repair criteria. The tube-to-tubesheet weld is not part of the tube. In tubes repaired by sleeving, the portion of the original tube wall between the sleeve's joints is not an area requiring re-inspection. In addition to meeting the requirements of d.1, d.2, d.3, d.4 and d.5 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.

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5.5.5.2 Unit 2 SG Program (continued)

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 24 effective full power months, which defines the inspection period.

3. Indications left in service as a result of application of the tube support plate voltage-based plugging or repair criteria (Specification 5.5.5.2.c.4) shall be inspected by bobbin coil probe during all future refueling outages.

   Implementation of the SG tube-to-tube support plate plugging or repair criteria requires a 100-percent bobbin coil inspection for hot-leg and cold-leg tube support plate intersections down to the lowest cold-leg tube support plate with known outside diameter stress corrosion cracking (ODSCC) indications. The determination of the lowest cold-leg tube support plate intersections having ODSCC indications shall be based on the performance of at least a 20-percent random sampling of tubes inspected over their full length.

4. When the F* methodology has been implemented, inspect 100% of the inservice tubes in the hot-leg tubesheet region with the objective of detecting flaws that may satisfy the applicable tube plugging or repair criteria of Specification 5.5.5.2.c.5 every 24 effective full power months or one interval between refueling outages (whichever is less).

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5.5.5.2 Unit 2 SG Program (continued)

5. For Alloy 800 sleeves: The parent tube, in the area where the sleeve-to-tube hard roll joint and the sleeve-to-tube hydraulic expansion joint will be established, shall be inspected prior to installation of the sleeve. Sleeve installation may proceed only if the inspection finds these regions free from service induced indications.

e. Provisions for monitoring operational primary to secondary LEAKAGE

f. Provisions for SG Tube Repair Methods

SG tube repair methods shall provide the means to reestablish the RCS pressure boundary integrity of SG tubes without removing the tube from service. For the purposes of these Specifications, tube plugging is not a repair. All acceptable tube repair methods are listed below.

1. ABB Combustion Engineering TIG welded sleeves, CEN-629-P, Revision 02 and CEN-629-P Addendum 1.

2. Westinghouse laser welded sleeves, WCAP-13483, Revision 2.

3. Westinghouse leak-limiting Alloy 800 sleeves, WCAP-15919-P, Revision 2.

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5.5.6 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.

5.5.7 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems for the Control Room Emergency Ventilation System (CREVS).

Tests described in Specifications 5.5.7.a and 5.5.7.b shall be performed at least once per 18 months and after the following:

- Each complete or partial replacement of the high efficiency particulate air (HEPA) filter or charcoal adsorber bank;
- Any structural maintenance on the HEPA filter or charcoal adsorber housing; and
- Significant painting, fire, or chemical release (for the Unit 1 and Unit 2 CREVS) in the vicinity of control room outside air intakes while the system is operating.

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5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

Tests described in Specification 5.5.7.c shall be performed at least once per 18 months and after the following:

- 720 hours of adsorber operation (for the Unit 1 and 2 CREVS);
- Any structural maintenance on the charcoal adsorber bank housing; and
- Significant painting, fire, or chemical release (for the Unit 1 and Unit 2 CREVS) in the vicinity of control room outside air intakes while the system is operating.

Tests described in Specifications 5.5.7.d and 5.5.7.e shall be performed at least once per 18 months.

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

a. Demonstrate for each of the required ESF systems that an inplace test of the HEPA filters shows a penetration and system bypass specified below when tested in accordance with ANSI N510-1980 (for the Unit 1 and 2 CREVS) at the system flowrate specified below:

ESF Ventilation System	Penetration	Flowrate
CREVS	$< 0.05\%$	≥ 800 cfm and ≤ 1000 cfm

b. Demonstrate for each of the required ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass specified below when tested in accordance with ANSI N510-1980 (for the Unit 1 and 2 CREVS) at the system flowrate specified below:

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5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

ESF Ventilation System	Penetration	Flowrate
CREVS	< 0.5%	≥ 800 cfm and ≤ 1000 cfm

c. Demonstrate for each of the required ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, or using a slotted tube sampler in accordance with ANSI N509-1980 shows, within 31 days after removal, the methyl iodide removal efficiency greater than or equal to the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C, an inlet methyl iodide concentration of 1.75 mg/m^3, and an air flow velocity and relative humidity (RH) specified below:

ESF Ventilation System	Removal Efficiency	Air Flow Velocity	RH
CREVS	99.5% (Unit 1) 99.5% (Unit 2)	0.68 ft/sec (Unit 1) 0.7 ft/sec (Unit 2)	≥ 70% (Unit 1) ≥ 70% (Unit 2)

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

ESF Ventilation System	Delta P	Flowrate
CREVS	6 inches Water Gauge (Unit 1) 5.6 inches Water Gauge (Unit 2)	≥ 800 cfm and ≤ 1000 cfm (Unit 1) ≥ 800 cfm and ≤ 1000 cfm (Unit 2)

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5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

e. Demonstrate that the heaters for each of the ESF systems dissipate the value specified below when tested in accordance with ANSI N510-1980.

ESF Ventilation System	Wattage
CREVS	≥ 3.87 kW and ≤ 5.50 kW

5.5.8 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 waste gas decay tanks (Unit 1) and gaseous waste storage tanks (Unit 2), and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks. The gaseous radioactivity quantities shall be determined following the methodology in Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure." The liquid radwaste quantities shall be determined in accordance with Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures."

The program shall include:

a. The limits for concentrations of hydrogen and oxygen in the Waste Gas Holdup System and a surveillance program to ensure the limits are maintained. Such limits shall ensure that the concentration of hydrogen and oxygen is maintained below flammability limits,

b. A surveillance program to ensure that the quantity of radioactivity contained in each waste gas decay tank (Unit 1) and each connected group of waste gas storage tanks (Unit 2) is less than the amount that would result in a whole body exposure of > 0.5 rem to any individual in an unrestricted area, in the event of an uncontrolled release of the tanks' contents, and

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

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5.5.9 Diesel Fuel Oil Testing Program

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

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

   1. An API gravity or an absolute specific gravity within limits,

   2. A flash point and kinematic viscosity (if gravity was not determined by comparison with suppliers certification) within limits for ASTM 2D fuel oil, and

   3. A water and sediment content within limits.

b. Within 31 days following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a., above, are within limits for ASTM 2D fuel oil, and

c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days.

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

5.5.10 Technical Specifications (TS) Bases Control Program

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

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

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

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

   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 FSAR.

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

d. Proposed changes that meet the criteria of Specification 5.5.10.b.1 and 5.5.10.b.2 above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.11 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate 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 plant is maintained in a safe condition if a loss of function condition exists,

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

   4. Other appropriate limitations and remedial or compensatory actions.

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, or

   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 (a) and (b) above is also inoperable.

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5.5.11 Safety Function Determination Program (SFDP) (continued)

c. The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5.12 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. For Unit 1, exemptions to Appendix J of 10 CFR 50 are dated November 19, 1984, and July 26, 1995. For Unit 2, exemptions to Appendix J of 10 CFR 50 are as stated in the Operating License. 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," and conditions and limitations specified in NEI 94-01, Revision 2-A.

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is 43.1 psig (for Unit 1) and 44.8 psig (for Unit 2).

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be 0.10% of containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. However, during the first unit startup prior to MODE 4 entry 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 $\leq 0.75\ L_a$ for Type A tests.

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$.

5.5 Programs and Manuals

5.5.12 Containment Leakage Rate Testing Program (continued)

b) For each emergency air lock door, no detectable seal leakage when gap between door seals is pressurized to ≥ 10 psig or door seal leakage quantified to ensure emergency air lock door seal leakage rate is ≤ 0.0005 L_a when tested at ≥ 10 psig.

c) For each personnel air lock door, no detectable seal leakage when gap between door seals is pressurized to ≥ P_a or door seal leakage quantified to ensure personnel air lock door seal leakage rate is ≤ 0.0005 L_a when tested at ≥ P_a.

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

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.13 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, which includes the following:

a. Actions to restore battery cells with float voltage < 2.13 V,

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

c. Actions to verify the remaining cells are ≥ 2.07 V when a cell or cells have been found to be < 2.13 V.

5.5.14 Control Room Envelope Habitability Program

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

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

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

5.5 Programs and Manuals

5.5.14 Control Room Envelope Habitability Program (continued)

c. ---

- NOTE -

The three-year test frequency for the CRE unfiltered air inleakage test failure that occurred in October 2017 may be extended an additional three years, not to exceed October 2023.

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

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREVS, operating at the flow rate required by the VFTP, at a Frequency of 18 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 the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

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

5.5.15 Surveillance Frequency Control Program

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

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

5.5 Programs and Manuals

5.5.15 Surveillance Frequency Control Program (continued)

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

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

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

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

5.6.1 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.

5.6.2 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; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.

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

5.6.3 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:

SL 2.1.1, "Reactor Core Safety Limits"

LCO 3.1.1, "SHUTDOWN MARGIN (SDM)"

LCO 3.1.3, "Moderator Temperature Coefficient (MTC)"

5.6 Reporting Requirements

5.6.3 CORE OPERATING LIMITS REPORT (COLR) (continued)

LCO 3.1.5.1, "Unit 1 Shutdown Bank Insertion Limits"

LCO 3.1.5.2, “Unit 2 Shutdown Bank Insertion Limits”

LCO 3.1.6.1, "Unit 1 Control Bank Insertion Limits"

LCO 3.1.6.2, “Unit 2 Control Bank Insertion Limits”

LCO 3.2.1, "Heat Flux Hot Channel Factor ($F_Q(Z)$)"

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

LCO 3.2.3, "Axial Flux Difference (AFD)"

LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation" - Overtemperature and Overpower ΔT Allowable Value parameter values

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

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:

WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology,"

WCAP-8745-P-A, "Design Bases for the Thermal Overtemperature ΔT and Thermal Overpower ΔT Trip Functions,"

WCAP-16996-P-A, Revision 1, “Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA Methodology),” November 2016,

WCAP-12945-P-A, Volumes 1 through 5, "Code Qualification Document for Best Estimate LOCA Analysis," [Shall not be used to determine core operating limits after December 2024]

(For Unit 1 only) WCAP-16009-P-A, "Realistic Large Break LOCA Evaluation Methodology Using Automated Statistical Treatment of Uncertainty Method (ASTRUM)," [Shall not be used to determine core operating limits after December 2024]

WCAP-10216-P-A, "Relaxation of Constant Axial Offset Control/ F_Q Surveillance Technical Specification,"

WCAP-14565-P-A, "VIPRE-01 Modeling and Qualification for Pressurized Water Reactor Non-LOCA Thermal-Hydraulic Safety Analysis,"

WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report,"

WCAP-15025-P-A, "Modified WRB-2 Correlation, WRB-2M, for Predicating Critical Heat Flux in 17x17 Rod Bundles with Modified LPD Mixing Vane Grids,"

5.6 Reporting Requirements

5.6.3 CORE OPERATING LIMITS REPORT (COLR) (continued)

WCAP-13749-P-A, “Safety Evaluation Supporting the Conditional Exemption of the Most Negative EOL Moderator Temperature Coefficient Measurement,” March 1997 (Westinghouse Proprietary),

WCAP-16045-P-A, “Qualification of the Two-Dimensional Transport Code PARAGON,”

WCAP-16045-P-A, Addendum 1-A, “Qualification of the NEXUS Nuclear Data Methodology,”

WCAP-12610-P-A & CENPD-404-P-A, Addendum 1-A, “Optimized ZIRLO™,”

WCAP-17661-P-A, “Improved RAOC and CAOC F_Q Surveillance Technical Specifications.”

As described in reference documents listed above, when an initial assumed power level of 102% of RATED THERMAL POWER is specified in a previously approved method, 100.6% of RATED THERMAL POWER may be used when input for reactor thermal power measurement of feedwater flow is by the leading edge flow meter (LEFM) or feedwater venturi normalized to a prior LEFM flow measurement.

Caldon, Inc. Engineering Report-80P, "Improving Thermal Power Accuracy and Plant Safety While Increasing Operating Power Level Using the LEFM √ ™ System"

Caldon, Inc. Engineering Report-160P, "Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM √ ™ System"

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.

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

a. RCS pressure and temperature limits for heat up, cooldown, low temperature operation, criticality, and hydrostatic testing, Overpressure Protection System (OPPS) enable temperature, and PORV lift settings as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:

LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," and

LCO 3.4.12, "Overpressure Protection System (OPPS)"

5.6 Reporting Requirements

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

b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in WCAP-14040-A, Revision 4, “Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves,” May 2004.

   WCAP-18124-NPA, Revision 0, “Fluence Determination with RAPTOR-M3G and FERRET,” July 2012, may be used as an alternative to Section 2.2 of WCAP-14040-A, Revision 4.

c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period and for any revision or supplement thereto.

5.6.5 Post Accident Monitoring Report

When a report is required by Condition B or F 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.

5.6.6 Steam Generator (SG) Tube Inspection Report

5.6.6.1 Unit 1 SG 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 5.5.5.1, “Unit 1 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

5.6.6 Steam Generator (SG) Tube Inspection Report (continued)

5.6.6.1 Unit 1 SG 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.

5.6.6.2 Unit 2 SG Tube Inspection Report

1. 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 5.5.5.2, “Unit 2 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;

      4. The number of tubes plugged or repaired during the inspection outage; and

      5. The repair methods utilized and the number of tubes repaired by each repair method.

   d. An analysis summary of the tube integrity conditions predicted to exist at the next scheduled inspection (the forward-looking tube integrity assessment) relative to the applicable performance criteria, including the analysis methodology, inputs, and results;

5.6 Reporting Requirements

5.6.6 Steam Generator (SG) Tube Inspection Report (continued)

5.6.6.2 Unit 2 SG Tube Inspection Report (continued)

e. The number and percentage of tubes plugged or repaired to date, and the effective plugging percentage in each SG; and

f. The results of any SG secondary side inspections.

2. A report shall be submitted within 90 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.5.2, “Unit 2 SG Program,” when voltage-based alternate repair criteria have been applied. The report shall include information described in Section 6.b of Attachment 1 to Generic Letter 95-05, "Voltage-Based Repair Criteria for Westinghouse Steam Generator Tubes Affected by Outside Diameter Stress Corrosion Cracking."

3. For implementation of the voltage-based plugging or repair criteria to tube support plate intersections, notify the Commission prior to returning the SG to service (MODE 4) should any of the following conditions arise:

   a. If circumferential crack-like indications are detected at the tube support plate intersections.

   b. If indications are identified that extend beyond the confines of the tube support plate.

   c. If indications are identified at the tube support plate elevations that are attributable to primary water stress corrosion cracking.

4. A report shall be submitted within 90 days after the initial entry into MODE 4 following an outage in which the F* methodology was applied. As applicable, the report shall include the following hot-leg and cold-leg tubesheet region inspection results associated with the application of F*:

   a. Total number of indications, location of each indication, orientation of each indication, severity of each indication, and whether the indications initiated from the inside or outside surface.

   b. The cumulative number of indications detected in the tubesheet region as a function of elevation within the tubesheet.

   c. The projected end-of-cycle accident-induced leakage from tubesheet indications.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

5.7.1 In lieu of the "control device" or "alarm signal" required by 10 CFR 20.1601, each high radiation area in which the intensity of radiation is $>$ 100 mrem/hr but $<$ 1000 mrem/hr shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiological Work Permit (RWP). Radiation protection personnel or personnel escorted by radiation protection personnel in accordance with approved emergency procedures, shall be exempt from the RWP issuance requirement during the performance of their 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 one or more of the following:

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

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

c. An individual qualified in radiation protection procedures 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 supervisor 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 intensity of radiation is $>$ 1000 mrem/hr, locked doors shall be provided to prevent unauthorized entry into such areas and the keys shall be maintained under administrative control of the shift supervisor on duty or a radiation protection supervisor.

APPENDIX B

ENVIRONMENTAL TECHNICAL SPECIFICATIONS
OPERATING LICENSE NO. DPR-66

Appendix B to Operating License DPR-66 has been eliminated in its entirety by Amendment 93. See Amendment Nos. 25, 64, 66 and 77.

APPENDIX C

ADDITIONAL CONDITIONS
OPERATING LICENSE NO. DPR-66

Vistra Operations Company LLC and Energy Harbor Nuclear Generation LLC shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Condition	Implementation Date
202	The licensee is authorized to relocate certain Technical Specification requirements to licensee-controlled documents. Implementation of this amendment shall include the relocation of these technical specification requirements to the appropriate documents, as described in the licensee's application dated September 9, 1996, and evaluated in the staff's safety evaluation attached to this amendment.	The amendment shall be implemented within 60 days from April 14, 1997
209	The licensee is authorized to relocate certain Technical Specification requirements to licensee-controlled documents. Implementation of this amendment shall include the relocation of these technical specification requirements to the appropriate documents, as described in the licensee's application dated March 14, 1997, as supplemented July 29 and August 13, 1997, and evaluated in the staff's safety evaluation attached to this amendment.	The amendment shall be implemented within 60 days from December 10, 1997
210	The licensee is authorized to relocate certain Technical Specification requirements to licensee-controlled documents. Implementation of this amendment shall include the relocation of these technical specification requirements to the appropriate documents, as described in the licensee's application dated September 11, 1997, and evaluated in the staff's safety evaluation attached to this amendment.	The amendment shall be implemented within 30 days from January 20, 1998

APPENDIX C

ADDITIONAL CONDITIONS
OPERATING LICENSE NO. DPR-66

Vistra Operations Company LLC and Energy Harbor Nuclear Generation LLC shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Condition	Implementation Date
225	The licensee is authorized to relocate certain Technical Specification requirements to licensee-controlled documents. Implementation of this amendment shall include the relocation of these Technical Specification requirements to the appropriate documents as described in the licensee's application dated December 24, 1998, as supplemented June 15, June 17, and July 7, 1999, and evaluated in the staff's safety evaluation attached to this amendment.	The amendment shall be implemented within 60 days from August 30, 1999
269	On the closing date(s) of the transfers to FENGenCo* of their interests in Beaver Valley Power Station, Unit No. 1, Pennsylvania Power Company and Ohio Edison Company shall transfer to FENGenCo* all of each transferor's respective accumulated decommissioning funds for Beaver Valley Power Station, Unit No. 1, and tender to FENGenCo* additional amounts equal to remaining funds expected to be collected in 2005, as represented in the application dated June 1, 2005, but not yet collected by the time of closing. All of the funds shall be deposited in a separate external trust fund for the reactor in the same amount as received with respect to the unit to be segregated from other assets of FENGenCo* and outside its administrative control, as required by NRC regulations, and FENGenCo* shall take all necessary steps to ensure that this external trust fund is maintained in accordance with the requirements of the order approving the transfer of the license and consistent with the safety evaluation supporting the order and in accordance with the requirements of 10 CFR Section 50.75, "Reporting and recordkeeping for decommissioning planning."	The amendment shall be implemented within 30 days from December 16, 2005

* FirstEnergy Nuclear Generation Corp. (FENGenCo) has been renamed Energy Harbor Nuclear Generation LLC.

APPENDIX C

ADDITIONAL CONDITIONS
OPERATING LICENSE NO. DPR-66

Vistra Operations Company LLC and Energy Harbor Nuclear Generation LLC shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Condition	Implementation Date
269	By the date of closing of the transfer of the ownership interests in Beaver Valley Power Station, Unit No. 1 from Pennsylvania Power Company to FENGenCo*, FENGenCo* shall obtain a parent company guarantee from FirstEnergy in an initial amount of at least $80 million (in 2005 dollars) to provide additional decommissioning funding assurance regarding such ownership interests. Required funding levels shall be recalculated annually and, as necessary, FENGenCo* shall either obtain appropriate adjustments to the parent company guarantee or otherwise provide any additional decommissioning funding assurance necessary for FENGenCo* to meet NRC requirements under 10 CFR 50.75. The Support Agreements described in the applications dated May 18, 2005 (up to $80 million), and June 1, 2005 (up to $400 million), shall be effective consistent with the representations contained in the applications. FENGenCo* shall take no action to cause FirstEnergy, or its successors and assigns, to void, cancel, or modify the Support Agreements without the prior written consent of the NRC staff, except, however, the $80 million Support Agreement in connection with the transfer of the Pennsylvania Power Company interests may be revoked or rescinded if and when the $400 million support agreement described in the June 1, 2005, application becomes effective. FENGenCo* shall inform the Director of the Office of Nuclear Reactor Regulation, in writing, no later than ten days after any funds are provided to FENGenCo* by FirstEnergy under either Support Agreement.	The amendment shall be implemented within 30 days from December 16, 2005

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* FirstEnergy Nuclear Generation Corp. (FENGenCo) has been renamed Energy Harbor Nuclear Generation LLC.

APPENDIX C

ADDITIONAL CONDITIONS
OPERATING LICENSE NO. DPR-66

Vistra Operations Company LLC and Energy Harbor Nuclear Generation LLC shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Condition	Implementation Date
278	Schedule for New and Revised Surveillance Requirements (SRs)	
	The schedule for performing SRs that are new or revised in Amendment No. 278 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, 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. For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance subject to the modified acceptance criteria 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.	The amendment shall be implemented within 150 days from date of issuance
278	Relocation of Certain Technical Specification Requirements	
	License Amendment No. 278 authorizes the relocation of certain Technical Specifications to other licensee-controlled documents. Implementation of this amendment shall include relocation of the requirements to the specified documents, as described in (1) Sections 4D and 4E of the NRC staff's Safety Evaluation, and (2) Table LA, Removed Detail Changes, and Table R, Relocated Specifications, attached to the NRC staff's Safety Evaluation, which is enclosed in this amendment.	The amendment shall be implemented within 150 days from date of issuance

APPENDIX C

ADDITIONAL CONDITIONS
OPERATING LICENSE NO. DPR-66

Vistra Operations Company LLC and Energy Harbor Nuclear Generation LLC shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Condition	Implementation Date
281	Initial Performance of New Surveillance and Assessment Requirements Upon implementation of Amendment No. 281 adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by Surveillance Requirement (SR) 3.7.10.4, in accordance with Specification 5.5.14.c(i), the assessment of CRE habitability as required by Specification 5.5.14.c(ii), and the measurement of CRE pressure as required by Specification 5.5.14.d, shall be considered met. Following implementation: (a) The first performance of SR 3.7.10.4, in accordance with Specification 5.5.14.c(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 3.0.2, as measured from the date of the most recent successful tracer gas test, 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, Specification 5.5.14.c(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from the date of the most recent successful tracer gas test, 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, Specification 5.5.14.d, shall be within 18 months, plus the 138 days allowed by SR 3.0.2, as measured from the date of the most recent successful pressure measurement test.	The amendment shall be implemented within 120 days from date of issuance

APPENDIX C

ADDITIONAL CONDITIONS
OPERATING LICENSE NO. DPR-66

Vistra Operations Company LLC and Energy Harbor Nuclear Generation LLC shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Condition	Implementation Date
304	Based on the Commission's approval regarding the change in the parent company issuing a $400 million Support Agreement to Energy Harbor Nuclear Generation LLC, Energy Harbor Nuclear Generation LLC shall comply with the conditions noted below. This $400 million Support Agreement supersedes all previous parent support agreements. A. The Support Agreement in the amount of $400 million described in the application dated April 26, 2019, is effective. Energy Harbor Nuclear Generation LLC shall take no action to void, cancel, or modify the Support Agreement without the prior written consent of the NRC staff. Energy Harbor Nuclear Generation LLC shall inform the Director of the Office of Nuclear Reactor Regulation, in writing, no later than 10 working days after any funds are provided to Energy Harbor Nuclear Generation LLC by Energy Harbor Corp. under the terms of the Support Agreement.	The amendment shall be implemented within 7 days from date of issuance
306	B. Deleted. C. Deleted.	
323	Based on the Commission's approval regarding the change in the parent company issuing a $400 million Support Agreement to Energy Harbor Nuclear Generation LLC, Energy Harbor Nuclear Generation LLC shall comply with the conditions noted below. This $400 million Support Agreement supersedes all previous parent support agreements. A. The Support Agreement in the amount of $400 million described in the application dated April 14, 2023, is effective. Energy Harbor Nuclear Generation LLC shall take no action to void, cancel, or modify the Support Agreement without the prior written consent of the NRC staff. Energy Harbor Nuclear Generation LLC shall inform the Director of the Office of Nuclear Reactor Regulation, in writing, no later than 10 working days after any funds are provided to Energy Harbor Nuclear Generation LLC by Vistra Operations Company LLC under the terms of the Support Agreement.	The amendment shall be implemented within 7 days from date of issuance

ADDITIONAL CONDITIONS
OPERATING LICENSE NO. DPR-66

Vistra Operations Company LLC and Energy Harbor Nuclear Generation LLC shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Condition	Implementation Date
323	Vistra Operations Company LLC shall provide to the Director of the Office of Nuclear Reactor Regulation or the Director of the Office of Nuclear Material Safety and Safeguards, as applicable, a copy of any application, at the time it is filed, to transfer (excluding grants of security interests or liens) from Vistra Operations Company LLC to its direct or indirect parent, or to any other affiliated company, facilities for the production, transmission, or distribution of electric energy having a depreciated book value exceeding ten percent (10%) of Vistra Operations Company LLC's consolidated net utility plant, as recorded on Vistra Operations Company LLC's books of account.	The amendment shall be implemented within 7 days from date of issuance