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

VISTRA OPERATIONS COMPANY LLC

AND

ENERGY HARBOR NUCLEAR GENERATION LLC

DOCKET NO. 50-346

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

RENEWED FACILITY OPERATING LICENSE

Renewed License No. NPF-3

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

   A. The application for renewed license 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 Davis-Besse Nuclear Power Station, Unit No. 1 (the facility) has been substantially completed in conformity with Construction Permit No. CPPR-80 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, as amended, the provisions of the Act, and the rules and regulations of the Commission;

1.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[1] 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;

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. NPF-3 subject to the conditions for protection of the environment set forth herein is in accordance with 10 CFR Part 51 (formerly Appendix D to 10 CFR Part 50), of the Commission's regulations and all applicable requirements have been satisfied;

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

J. Actions have been identified and have been or will be taken with respect to (1) managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21(a)(1), and (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21(c), such that there is reasonable assurance that the activities authorized by the renewed 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. NPF-3 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 Davis-Besse Nuclear Power Station, Unit No. 1, a pressurized water nuclear reactor and associated equipment

[1] Vistra Operations Company LLC is authorized to act as agent for Energy Harbor Nuclear Generation LLC (collectively, the licensees).

(the facility), owned by Energy Harbor Nuclear Generation LLC. The facility is located on the south-western shore of Lake Erie in Ottawa County, Ohio, approximately 21 miles east of Toledo, Ohio, and is described in the "Final Safety Analysis Report" as supplemented and amended (Amendments 14 through 44) and the Environmental Report as supplemented and amended (Supplements 1 through 2).

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

(1) Vistra Operations Company LLC, pursuant to Section 103 of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess, use, and operate the facility;

(2) Energy Harbor Nuclear Generation LLC, to possess the facility at the designated location in Ottawa County, Ohio in accordance with the procedures and limitations set forth in this renewed license;

(3) 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 Final Safety Analysis Report, as supplemented and amended;

(4) 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;

(5) 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; and

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

2.C. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; 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) Maximum Power Level

Vistra Operations Company LLC is authorized to operate the facility at steady state reactor core power levels not in excess of 2817 megawatts (thermal). Prior to attaining the power level, Toledo Edison Company shall comply with the conditions identified in Paragraph (3) (o) below and complete the preoperational tests, startup tests and other items identified in Attachment 2 to this license in the sequence specified. Attachment 2 is an integral part of this renewed license.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 303 are hereby incorporated in the renewed license. Vistra Operations Company LLC shall operate the facility in accordance with the Technical Specifications.

(3) Additional Conditions

The matters specified in the following conditions shall be completed to the satisfaction of the Commission within the stated time periods following the issuance of the renewed license or within the operational restrictions indicated. The removal of these conditions shall be made by an amendment to the renewed license supported by a favorable evaluation by the Commission:

(a) Vistra Operations Company LLC shall not operate the reactor in operational Modes 1 and 2 with less than three reactor coolant pumps in operation.

(b) Deleted per Amendment 6

(c) Deleted per Amendment 5

2.C(3)(d) Prior to operation beyond 32 Effective Full Power Years, Vistra Operations Company LLC shall provide to the NRC a reanalysis and proposed modifications, as necessary, to ensure continued means of protection against low temperature reactor coolant system overpressure events.

(e) Deleted per Amendment 33

(f) Deleted per Amendment 33

(g) Deleted per Amendment 33

(h) Deleted per Amendment 24

(i) Deleted per Amendment 11

(j) Revised per Amendment 3
Deleted per Amendment 28

(k) Within 60 days of startup following the first (1st) regularly scheduled refueling outage, Toledo Edison Company shall complete tests and obtain test results as required by the Commission to verify that faults on non-Class IE circuits would not propagate to the Class IE circuits in the Reactor Protection System and the Engineered Safety Features Actuation System.

(l) Revised per Amendment 7
Deleted per Amendment 15

(m) Deleted per Amendment 7

(n) Deleted per Amendment 10

(o) Deleted per Amendment 2

(p) Deleted per Amendment 29

(q) Deleted per Amendment 7

(r) Deleted per Amendment 30

(s) Toledo Edison Company shall be exempted from the requirements of Technical Specification 3/4.7.8.1 for the two (2) Americium-Beryllium-Copper startup sources to be installed or already installed for use during the first refueling cycle until such time as the sources are replaced.

(t) Added per Amendment 83
Deleted per Amendment 122

2.C(4) <u>Fire Protection</u>

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 16, 2015, as supplemented by letters dated February 2, March 7, July 28, and December 16, 2016; January 17, June 16, and May 13, 2019, and as approved by Amendment No. 298. 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 changes does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

<u>Risk-Informed Changes that May Be Made Without Prior NRC Approval</u>

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 probabilistic risk assessment model, methods that have been approved by the NRC through a plant-specific license amendment or NRC approvals of generic methods specifically for use in NFPA 805 risk impact.

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

(b) Prior NRC review and approval is not required for individual changes that result in a risk increase less than 10^{-7}/year for core damage frequency and less than 10^{-8}/year 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.

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); and
- "Passive Fire Protection Features" (Section 3.11).

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

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

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process, as approved by Amendment No. 298, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

Transition License Conditions

(1) Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) and (3) 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 modification described in Attachment S, Table S-1, "Plant Modifications Committed," to the FENOC letter dated November 20, 2018, within 2 years following issuance of the license amendment. The licensee shall maintain appropriate compensatory measures in place until completion of this modification.

(3) The licensee shall implement the items listed in Attachment S, Table S-2, "Implementation Items," to the FENOC letter dated November 20, 2018, within 2 years following issuance of the license amendment.

(5) Deleted per Amendment No. 279.

(6) Antitrust Conditions

Vistra Operations Company LLC and Energy Harbor Nuclear Generation LLC shall comply with the antitrust conditions delineated in Condition 2.E of this renewed license as if named therein. Vistra Operations Company LLC shall not market or broker power or energy from the Davis-Besse Nuclear Power Station, Unit No. 1. Energy Harbor Nuclear Generation LLC is responsible and accountable for the actions of Vistra Operations Company LLC to the extent that said actions affect the marketing or brokering of power or energy from the Davis-Besse Nuclear Power Station, Unit No. 1, and in any way, contravene the antitrust license conditions contained in the renewed license.

2.C(7) <u>Steam Generator Tube Circumferential Crack Report</u>

Following each inservice inspection of steam generator tubes, the NRC shall be notified by Vistra Operations Company LLC of the following prior to returning the steam generators to service:

a. Indications of circumferential cracking inboard of the roll repair.

b. Indication of circumferential cracking in the original roll or heat affected zone adjacent to the tube-to-tubesheet seal weld if no reroll is present.

c. Determination of the best-estimate total leakage that would result from an analysis of the limiting LBLOCA based on circumferential cracking in the original tube-to-tubesheet rolls, tube-to-tubesheet reroll repairs, and heat affected zones of seal welds as found during each inspection.

Vistra Operations Company LLC shall demonstrate by evaluation that the primary-to-secondary leakage following a LBLOCA, if any, as described in Appendix A to topic Report BAW-2374, July 2000, continues to be acceptable, based on the as-found condition of the steam generators. For the purpose of this evaluation, acceptable means that a best estimate of the leakage expected in the event of a LBLOCA would not result in a significant increase of radionuclide release (e.g., in excess of 10 CFR Part 100 limits). This is required to demonstrate that adequate margin and defense-in-depth continue to be maintained. A written summary of this evaluation shall be provided to the NRC within three months following completion of the steam generator tube inservice inspection.

2.C(8) <u>Mitigation Strategy License Condition</u>

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

(a) Fire fighting response strategy with the following elements:
1. Predefined 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

2.C(9) Implementation of New and Revised Surveillance Requirements

For SRs that are new in Amendment No. 279, 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 Amendment No. 279, 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 Amendment No. 279, that have modified acceptance criteria, the first performance is due at the end of the surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment.

For SRs that existed prior to Amendment No. 279, whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to the implementation of this amendment.

(10) Removed Details and Requirements Relocated to Other Controlled Documents

License Amendment No. 279 authorizes the relocation of certain technical specifications and operating license conditions, if applicable, to other licensee-controlled documents. Implementation of this amendment shall include relocation of these requirements to the specified documents.

(11) License Renewal License Conditions

(a) The information in the Updated Final Safety Analysis Report (UFSAR) supplement, submitted pursuant to 10 CFR 54.21(d), as revised during the license renewal application review process, and as supplemented by the Commitments applicable to Davis-Besse Nuclear Power Station, Unit No. 1, in Appendix A of the "Supplemental Safety Evaluation Report Related to the License Renewal of Davis-Besse Nuclear Power Station" (SER) dated August 2015, is collectively the "License Renewal UFSAR Supplement." The License Renewal UFSAR Supplement is henceforth part of the UFSAR which will be updated in accordance with 10 CFR 50.71(e). As such, the licensee may make changes to the programs and activities applicable to Davis-Besse Nuclear Power Station, Unit No. 1, described in the License Renewal UFSAR Supplement provided the licensee evaluates such changes pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.

(b) This License Renewal UFSAR Supplement, as revised per License Condition 11(a) above, describes certain programs to be implemented and activities to be completed prior to the period of extended operation.

1. The licensee shall implement those new programs and enhancements to existing programs no later than October 22, 2016.

2. The licensee shall complete those activities as noted in the Commitments applicable to Davis-Besse Nuclear Power Station, Unit No. 1, in the License Renewal UFSAR Supplement no later than October 22, 2016 or the end of the last refueling outage prior to the period of extended operation, whichever occurs later.

3. The licensee shall notify the NRC in writing within 30 days after having accomplished item (b)1 above and include the status of those activities that have been or remain to be completed in item (b)2 above.

(c) This license condition requires testing of surveillance capsules for the period of extended operation to meet the test procedures and reporting requirements of American Society of Testing and Materials (ASTM) E 185-82 to the extent practicable for the configuration of the specimens in the capsule. All pulled capsules shall be properly maintained for testing, and any changes to storage requirements must be approved by the NRC. All pulled and tested capsules, unless discarded before August 31, 2000, shall be placed in storage to be saved for possible future reconstitution and use.

2.D. 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 of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contain Safeguards Information protected under 10 CFR 73.21, is entitled: "Davis-Besse Nuclear Power Station Physical Security Plan, Training and Qualification Plan, and Safeguards Contingency Plan Revision 4," submitted by letter dated May 18, 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 CSP was approved by License Amendment No. 283 and is amended by License Amendment No. 290.

E. This license is subject to the following antitrust conditions:

Definitions

Entity shall mean any electric generation and/or distribution system or municipality or cooperative with a statutory right or privilege to engage in either of these functions.

Wheeling shall mean transportation of electricity by a utility over its lines for another utility, including the receipt from and delivery to another system of like amounts but not necessarily the same energy. Federal Power Commission, The 1970 National Power Survey, Part 1, p. I-24-8.

License Conditions Approved By the Atomic Safety and Licensing Appeal Board*

(1) Applicants shall not condition the sale or exchange of wholesale power or coordination services upon the condition that any other entity:

(a) enter into any agreement or understanding restricting the use of or alienation of such energy or services to any customers or territories;

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* "Applicants" as used by the Appeal Board refers to the Toledo Edison Company, Cleveland Electric Illuminating Company, Duquesne Light Company, Ohio Edison Company and Pennsylvania Power Company although none of these entities are currently Licensees for this facility.

2.E(1)(b) enter into any agreement or understanding requiring the receiving entity to give up any other power supply alternatives or to deny itself any market opportunities;

(c) withdraw any petition to intervene or forego participation in any proceeding before the Nuclear Regulatory Commission or refrain from instigating or prosecuting any antitrust action in any other forum.

(2) Applicants, and each of them, shall offer interconnections upon reasonable terms and conditions at the request of any other electric entity(ies) in the CCCT, such interconnections to be available (with due regard for any necessary and applicable safety procedures) for operation in a closed-switch synchronous operating mode if requested by the interconnecting entity(ies). Ownership of transmission lines and switching stations associated with such interconnection shall remain in the hands of the party funding the interconnection subject, however, to any necessary safety procedures relating to disconnection facilities at the point of power delivery. Such limitations on ownership shall be the least necessary to achieve reasonable safety practices and shall not serve to deprive purchasing entities of a means to effect additional power supply options.

(3) Applicants shall engage in wheeling for and at the request of other entities in the CCCT:

(a) of electric energy from delivery points of Applicants to the entity(ies); and,

(b) of power generated by or available to the other entity, as a result of its ownership or entitlements* in generating facilities, to delivery points of applicants designated by the other entity.

(c) The Cleveland Electric Illuminating Company shall file with the FERC, within ten (10) days of the Order of the Director of Nuclear Reactor Regulation dated May 13, 1980, an amendment to its January 27, 1978 Transmission Service Schedule, FERC Docket ER78-194, in accordance with Appendix A to that Order and in conformity with the applicable filing requirements of the Federal Energy Regulatory Commission.

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* "Entitlement" includes but is not limited to power made available to an entity pursuant to an exchange agreement.

2.E(3)(cont.) Such wheeling services shall be available with respect to any unused capacity on the transmission lines of Applicants, the use of which will not jeopardize Applicants' system. In the event Applicants must reduce wheeling services to other entities due to lack of capacity, such reduction shall not be effected until reductions of at least 5% have been made in transmission capacity allocations to other Applicants in these proceedings and thereafter shall be made in proportion to reductions* imposed upon other Applicants to this proceeding.

Applicants shall make reasonable provisions for disclosed transmission requirements of other entities in the CCCT in planning future transmission either individually or within the CAPCO grouping. By "disclosed" is meant the giving of reasonable advance notification of future requirements by entities utilizing wheeling services to be made available by Applicants.

(4)(a) Applicants shall make available membership in CAPCO to any entity in the CCCT with a system capability of 10 MW or greater;

(b) A group of entities with an aggregate system capability of 10 MW or greater may obtain a single membership in CAPCO on a collective basis.**

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* The objective of this requirement is to prevent preemption of unused capacity on the lines of one Applicant by other Applicants or by entities the transmitting Applicant deems noncompetitive. Competitive entities are to be allowed opportunity to develop bulk power services options even if this results in reallocation of CAPCO transmission channels. This relief is required in order to avoid prolongation of the effects of Applicants' illegally sustained dominance.

** E.g., Wholesale Customer of Ohio Edison (WCOE).

2.E(4)(c) Entities applying for membership in CAPCO pursuant to License Condition 4 shall become members subject to the terms and conditions of the CAPCO Memorandum of Understanding of September 14, 1967, and its implementing agreements, except that new members may elect to participate on an equal percentage of reserve basis rather than a P/N allocation formula for a period of twelve years from date of entrance.* Following the twelfth year of entrance, new members shall be expected to adhere to such allocation methods as are then employed by CAPCO (subject to equal opportunity for waiver or special consideration granted to original CAPCO members which then are in effect).

(d) New members joining CAPCO pursuant to this provision of relief shall not be entitled to exercise voting rights until such time as the system capability of the joining member equals or exceeds the system capability of the smallest member of CAPCO which enjoys voting rights.**

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* The selection of the 12-year period reflects our determination that an adjustment period is necessary since the P/N formula has a recognized effect of discriminating against small systems and forcing them to forego economies of scale in generation in order to avoid carrying excessive levels of reserves. We also found that P/N is not entirely irrational as a method of reserve allocation. We have observed that Applicants themselves provided adjustment periods and waivers to integrate certain Applicants into the CAPCO reserve requirement program. The 12-year period should permit new entrants to avoid initial discrimination but to accommodate and adjust to the CAPCO system over some reasonable period of time. Presumably new entrants will be acquiring ownership shares and entitlements during the 12-year period so that adverse consequences of applying the P/N formula will be mitigated.

** Our objective is to prevent impediments to the operation and development of an areawide power pool through the inability of lesser entities to respond timely or to make necessary planning commitments. While we grant new member entities the opportunity to participate in CAPCO it is not our intent to relieve joining entities of responsibilities and obligations necessary to the successful operation of the pool. For those smaller entities which do not wish to assume the broad range of obligations associated with CAPCO membership we have provided for access to bulk power service options which will further their ability to survive and offer competition in the CCCT.

2.E(5) Applicants shall sell maintenance power to requesting entities in the CCCT upon terms and conditions no less favorable than those Applicants make available: (1) to each other either pursuant to the CAPCO agreements or pursuant to bilateral contract; or (2) to non-Applicant entities outside the CCCT.

(6) Applicants shall sell emergency power to requesting entities in the CCCT upon terms and conditions no less favorable than those Applicants make available: (1) to each either pursuant to the CAPCO agreements or pursuant to bilateral contract; or (2) to non-Applicant entities outside the CCCT.

(7) Applicants shall sell economy energy to requesting entities in the CCCT, when available, on terms and conditions no less favorable than those available: (1) to each other either pursuant to the CAPCO agreements or pursuant to bilateral contract; or (2) to non-Applicant entities outside the CCCT.

(8) Applicants shall share reserves with any interconnected generation entity in the CCCT upon request. The requesting entity shall have the option of sharing reserves on an equal percentage basis or by use of the CAPCO P/N allocation formula or on any other mutually agreeable basis.

(9) (a) Applicants shall make available to entities in the CCCT access to the Davis-Besse 1, 2 and 3 and the Perry 1 and 2 nuclear units and any other nuclear units for which Applicants or any of them, shall apply for a construction permit or operating license during the next 25 years. Such access, at the option of the requesting entity, shall be on an ownership share, or unit participation or contractual pre-purchase of power basis.*

Each requesting entity (or collective group of entities) may obtain up to 10% of the capacity of the Davis-Besse and Perry Units and 20% of future units (subject to the 25-year limitation) except that once any entity or entities have contracted for allocations totaling 10% or 20%, respectively, no further participation in any given unit need be offered.

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* Requesting entities' election as to the type of access may be affected by provisions of state law relating to dual ownership of generation facilities by municipalities and investor-owned utilities. Such laws may change during the period of applicability of these conditions. Accordingly, we allow requesting entities to be guided by relevant legal and financial considerations (including Commission regulations on nuclear power plant ownership) in fashioning their requests.

2.E(9)(b) Commitments for the Davis-Besse and Perry Units must be made by requesting entities within two years after this decision becomes final. Commitments for future units must be made within two years after a construction permit application is filed with respect to such a unit (subject to the 25-year limitation) or within two years after the receipt by a requesting entity of detailed written notice of Applicants' plans to construct the unit, whichever is earlier; provided, however, that the time for making the commitment shall not expire until at least three months after the filing of the application for a construction permit. Where an Applicant seeks to operate a nuclear plant with respect to which it did not have an interest at the time of the filing of the application for the construction permit, the time periods for commitments shall be the same except that reference should be to the operating license, not the construction permit.

(10) Applicants shall sell wholesale power to any requesting entity in the CCCT, in amounts needed to meet all or part of such entity's requirements. The choice as to whether the agreement should cover all or part of the entity's requirements should be made by the entity, not the Applicant or Applicants.

(11) These conditions are intended as minimum conditions and do not preclude Applicants from offering additional wholesale power or coordination services to entities within or without the CCCT. However, Applicants shall not deny wholesale power or coordination services required by these conditions to non-Applicant entities in the CCCT based upon prior commitments arrived at in the CAPCO Memorandum of Understanding or implementing agreements. Such denial shall be regarded as inconsistent with the purpose and intent of these conditions.

The above conditions are to be implemented in a manner consistent with the provisions of the Federal Power Act and all rates, charges or practices in connection therewith are to be subject to the approval of regulatory agencies having jurisdiction over them.

2.F. This renewed license is subject to the following additional conditions for the protection of the environment:

(1) Vistra Operations Company LLC shall operate Davis-Besse Unit No. 1 within applicable Federal and State air and water quality standards.

(2) Before engaging in an operational activity not evaluated by the Commission, Vistra Operations Company LLC will prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity may result in a significant adverse environmental impact that was not evaluated, or that is significantly greater than that evaluated in the Final Environmental Statement, Vistra Operations Company LLC shall provide a written evaluation of such activities and obtain prior approval of the Director, Office of Nuclear Reactor Regulation for the activities.

G. In accordance with the requirement imposed by the October 8, 1976, order of the United States Court of Appeals for the District of Columbia Circuit in Natural Resources Defense Council v. Nuclear Regulatory Commission, No. 74-1385 and 74-1586, that the Nuclear Regulatory Commission "shall make any licenses granted between July 21, 1976 and such time when the mandate is issued subject to the outcome of such proceedings herein," this license shall be subject to the outcome of such proceedings.

H. This renewed license is effective as of the date of issuance and shall expire at midnight April 22, 2037.

3. Based on the Commission's Order dated December 16, 2005 and conforming Amendment No. 270 dated December 16, 2005 regarding the direct transfer of the license from the Cleveland Electric Illuminating Company (Cleveland Electric) and the Toledo Edison Company (Toledo Edison) to FirstEnergy Nuclear Generation Corp. (FENGenCo)*, FirstEnergy Nuclear Operating Company** and FENGenCo* shall comply with the following conditions noted below:

A. On the closing date of the transfers to FENGenCo* of their interests in Davis-Besse, Cleveland Electric and Toledo Edison shall transfer to FENGenCo* all of each transferor's respective accumulated decommissioning funds for Davis-Besse 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."

* FirstEnergy Nuclear Generation Corp. (FENGenCo)* has been renamed Energy Harbor Nuclear Generation LLC.

** FirstEnergy Nuclear Operating Company has been renamed Energy Harbor Nuclear Corp.

B. 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.

C. 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.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

William M. Dean, Director
Office of Nuclear Reactor Regulation

Attachments:
1. Appendix A - Technical Specifications
2. Preoperational Tests, Startup Tests and Other Items Which Must Be Completed Prior to Proceeding to Succeeding Operational Modes

Date of Issuance: December 8, 2015

ATTACHMENT 2 TO LICENSE NPF-3

Preoperational Test, Startup Tests, and
Other Items Which Must be Completed Prior to Proceeding
to Succeeding Operational Modes

This attachment identifies certain preoperational tests, startup tests, and other items which must be completed to the Commission's satisfaction prior to proceeding to certain specified Operational Modes. Toledo Edison Company shall not proceed beyond the authorized Operational Modes without prior written authorization from the Commission.

A. Toledo Edison Company may at the license issue date proceed directly to Operational Mode 6 (initial fuel loading), and may subsequently proceed to Operational Mode 5 (cold shutdown), except as noted below.

B. The following items must be completed prior to proceeding to Operational Mode 5 (cold shutdown):

1. Approval is required-of the fifteen listed surveillance procedures

ST5030.02	RPS Monthly Check
ST5030.09	RPS Response Time
ST5031.14	RPS Response Time Calculation
ST5036.02	Remote Shutdown Monitor Instrument Channel Calibration
ST5036.03	Post Accident Instrument Channel Check
ST5036.04	Post Accident Instrument Channel Calibration
ST5050.02	Core Flood System Isolation Valve Check
ST5051.01	ECCS Subsystem Monthly Test
ST5061.02	Containment Local Leak Test
ST5062.01	Containment Spray System Monthly Test
ST5070.01	Main Steam Safety Valve Setpoint
ST5020.01	Axial Power Imbalance Manual Calibration
ST5022.03	Quadrant Power Tilt
ST5033.02	Incore Monitor System Recorder Calibration
ST5042.03	Reactor Coolant Flow Rate Test

2. System Interaction

The Toledo Edison Company's 5000 and 8000 Series EIRs (Engineering Inspection Reports) concerning upgrading of supports and installation of water shields on non-safety related systems such that their failure will not degrade or cause failure of a safety related system must be completed as stated below:

a. Upgrading of 29 electrical tray and conduit supports primarily located in the 4160 and 480 volt switch gear rooms and Intake Water Structure.
b. Final inspection and approval by Toledo Edison Company Quality Control of 24 completed modifications and approval by Engineering.
c. Final review and approval by Toledo Edison Company Engineering of 26 completed and inspected modifications.
d. Completion of 24 structural items, primarily shielding devices from water sources.

C. The following items must be completed prior to proceeding to Operational Mode 4 (hot shutdown):

1. High Pressure Injection-Pump Modification

The Toledo Edison Company must provide documentation to establish that the modification work for the pumps is in accordance with the FSAR and the specification requirements.

2. HVAC Systems

The reinspection activity and subsequent repair effort, relative to welds needed to resist seismic design forces, must be completed.

3. Large Pipe Hangers and-Anchors

Corrective action relative to 76 large pipe hangers and seven anchors for safety related systems must be completed.

4. Small Pipe Hangers and-Anchors

Corrective action relative to small piping system discrepancies must be completed.

5. Valve Stem Locknuts

Stem locknuts for 141 valves with limit torque operators within safety related systems must be verified as being "staked."

6. Leak-Tightness Test-of Valve Enclosure

Approval of periodic test procedure and completion of a leak tightness test of the enclosure installed around DH 11 and DH 12 valves in containment.

7. Systems Interaction

   a. Upgrading of 20 electrical conduit supports primarily located in hallways and corridors.
   b. Upgrading of 27 pipe supports.

D. The following items must be completed prior to proceeding to Operational Mode 3 (hot standby):

1. Reworked Valves

   Five small valves within safety related systems must be hydrostatically tested and accepted to the requirements of the applicable code.

E. The following items must be completed prior to proceeding to Operational Mode 2 (initial criticality):

1. Modification to replace the four level switches in each steam generator inside containment with four level transmitters.

2. Resolution of discrepancies for Preoperational Tests:

   PT 232.01, Miscellaneous Radwaste System
   PT 230.01, Clean Liquid Radwaste

3. Completion of Preoperational Tests:

   PT 230.02, Degassifier
   PT 230.03, Boric Acid Evaporator
   PT 231.02, Miscellaneous Waste Evaporator

F. The following items must be completed prior to proceeding to Operational Mode 1 (power operation):

1. Emergency Planning-Procedures

   a. An isolation emergency plan implementing procedure to cope with weather conditions which require personnel to remain at the station for undetermined periods shall be developed. This procedure shall also address provisions for transportation of emergency personnel to the station when needed during these periods.
   b. The following topics will be incorporated into the Emergency Plan Implementing Procedure:

(1) Evacuation of personnel to minimize exposure to hazard.

(2) Personnel accountability to assist the person in charge of emergency response actions to account for missing persons.

(3) Reentry into previously evacuated areas for the purposes of saving lives, search and rescue of missing and injured persons. Safety equipment to be worn depending on areas or conditions shall be addressed.

2. Completion of Preoperational Tests Solid Waste Compactor, PT 233.02.

3. Electrical Firebarrier-Testing

The Toledo Edison Company shall provide documentation of fire barrier testing to assure conformance of the fire barriers installed at the Davis-Besse I plant to ASTS E-119.

4. Boron Dilution-Mode-Tests

Complete flow tests in the hot leg drain mode and the pressurizer spray mode to verify minimum flow of 40 gallons per minute.

DAVIS—BESSE NUCLEAR POWER STATION UNIT 1 TECHNICAL SPECIFICATIONS

APPENDIX "A" TO LICENSE NO. NPF - 3

APRIL 22, 1977

ISSUED BY THE UNITED STATES NUCLEAR REGULATORY COMMISSION

TABLE OF CONTENTS		Page Number

3.3 INSTRUMENTATION (continued)

5.0 ADMINISTRATIVE CONTROLS (continued)

1.0 USE AND APPLICATION

1.1 Definitions

---NOTE---

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

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

1.1 Definitions

CHANNEL CHECK (continued)	
	the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total steps.
CONTROL RODS	CONTROL RODS shall be all full length safety and regulating rods that are used to shut down the reactor and control power level during maneuvering operations.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.3. 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 Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites," or those listed in Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977, or 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.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

1.1 Definitions

LEAKAGE	LEAKAGE shall be: a. Identified LEAKAGE 1. LEAKAGE, such as that from pump seals or valve packing (except RCP seal return flow), 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 return flow) 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.
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.
NUCLEAR HEAT FLUX HOT CHANNEL FACTOR (F_Q)	F_Q shall be the maximum local linear power density in the core divided by the core average fuel rod linear power density, assuming nominal fuel pellet and fuel rod dimensions.
NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR ($F^N_{\Delta H}$)	$F^N_{\Delta H}$ shall be the ratio of the integral of linear power along the fuel rod on which minimum departure from nucleate boiling ratio occurs, to the average fuel rod power.

1.1 Definitions

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 Section 14, "Initial Tests and Operation," of the UFSAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
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, for the current reactor vessel fluence period. The pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.4.
QUADRANT POWER TILT (QPT)	QPT shall be defined by the following equation and is expressed as a percentage of the Power in any Core Quadrant (P_{quad}) to the Average Power of all Quadrants (P_{avg}). $QPT = 100 \, [\, (P_{quad} \, / \, P_{avg}) - 1 \,]$
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2817 MWt.

1.1 Definitions

REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until electrical power is interrupted at the control rod drive trip breakers. 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.
SAFETY FEATURES ACTUATION SYSTEM (SFAS) RESPONSE TIME	The SFAS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its SFAS actuation setpoint at the channel sensor until the SFAS 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.
SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming: a. All full length CONTROL RODS (safety and regulating) are fully inserted except for the single CONTROL ROD of highest reactivity worth, which is assumed to be fully withdrawn. With any CONTROL ROD not capable of being fully inserted, the reactivity worth of these CONTROL RODS must be accounted for in the determination of SDM; b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level; and c. There is no change in APSR position.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, trains, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, trains, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, trains, channels, or other designated components in the associated function.

1.1 Definitions

STEAM AND FEEDWATER RUPTURE CONTROL SYSTEM (SFRCS) RESPONSE TIME	The SFRCS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its SFRCS actuation setpoint at the channel sensor until the SFRCS equipment is capable of performing its safety function (i.e., valves travel to their required positions, pumps discharge pressures reach their required values, etc.). 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.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

Table 1.1-1 (page 1 of 1)
MODES

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

(a) Excluding decay heat.

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

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

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE	The purpose of this section is to explain the meaning of logical connectors. Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are <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.

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-1

ACTIONS

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

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

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

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

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

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE

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

BACKGROUND

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

DESCRIPTION

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

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

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

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

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 expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition B. The Completion Time for Condition B is tracked from the time the Condition A Completion Time expired.

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

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

1.3 Completion Times

EXAMPLES (continued)

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

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

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

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

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

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

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

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.

1.3 Completion Times

EXAMPLES (continued)

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

EXAMPLE 1.3-6

ACTIONS

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated.	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. AND B.2 Be in MODE 5.	6 hours 36 hours

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

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

1.3 Completion Times

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

1.0 USE AND APPLICATION

1.4 Frequency

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

DESCRIPTION

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

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

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

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

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

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

1.4 Frequency

DESCRIPTION (continued)

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

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

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

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches ≥ 25% RTP to perform the Surveillance. The Surveillance is still considered to be performed within the "specified Frequency." Therefore, if the Surveillance was not performed within the 7 day (plus the extension allowed by SR 3.0.2) interval, but operation was < 25% RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours (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 was 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 was not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), but the unit was not in MODE 1, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES, even with the 24 hour Frequency exceeded, provided the MODE change was not made into MODE 1. Prior to entering MODE 1 (assuming again that the 24 hour Frequency was not met), SR 3.0.4 would require satisfying the SR.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-5

SURVEILLANCE REQUIREMENTS

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

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

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-6

SURVEILLANCE REQUIREMENTS

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

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

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 In MODES 1 and 2, the combination of reactor THERMAL POWER and AXIAL POWER IMBALANCE shall not exceed the protective limit shown in the COLR for the various combinations of three and four reactor coolant pump operation.

2.1.1.2 In MODES 1 and 2, Reactor Coolant System (RCS) core outlet temperature and pressure shall be maintained above and to the left of the SL shown in Figure 2.1.1-1.

2.1.2 Reactor Coolant System Pressure SL

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

2.2 SAFETY LIMIT VIOLATIONS

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

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

2.2.2 In MODE 1 or 2, if SL 2.1.1.2 is violated, restore RCS pressure and temperature within limits and be in MODE 3 within 1 hour.

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

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

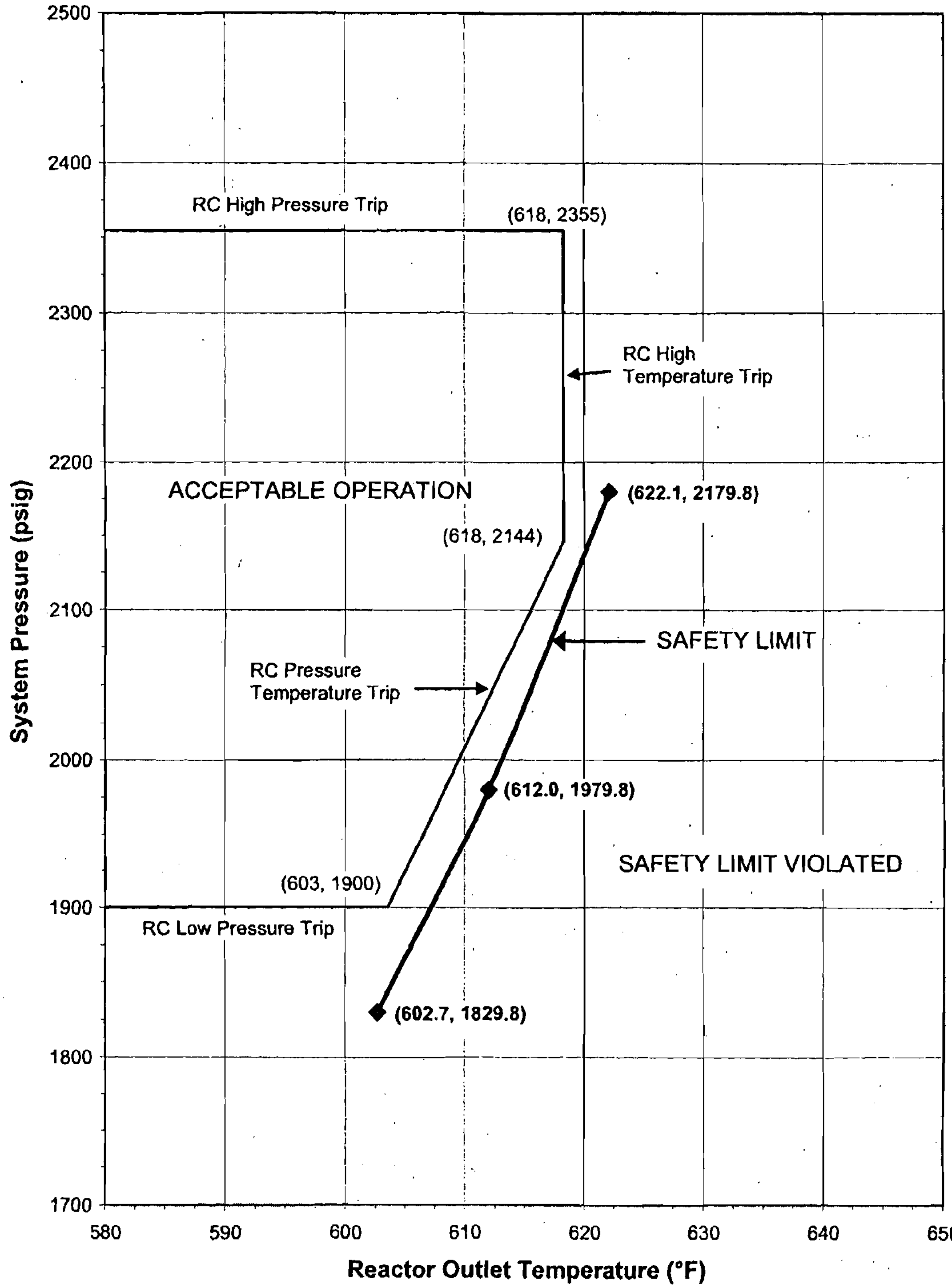

Figure 2.1.1-1 (page 1 of 1)
Reactor Coolant System Departure from Nucleate Boiling Safety Limits

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 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.

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 5.5.14, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.
LCO 3.0.7	Test Exception LCOs 3.1.8 and 3.1.9 allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

3.0 LCO Applicability

LCO 3.0.8	When one or more required snubbers are unable to perform their associated support function(s), any affected supported LCO(s) are not required to be declared not met solely for this reason if risk is assessed and managed, and: a. the snubbers not able to perform their associated support function(s) are associated with only one train or subsystem of a multiple train or subsystem supported system or are associated with a single train or subsystem supported system and are able to perform their associated support function within 72 hours; or b. the snubbers not able to perform their associated support function(s) are associated with more than one train or subsystem of a multiple train or subsystem supported system and are able to perform their associated support function within 12 hours. At the end of the specified period the required snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1	SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.
SR 3.0.2	The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met. For Frequencies specified as "once," the above interval extension does not apply. If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance. Exceptions to this Specification are stated in the individual Specifications.
SR 3.0.3	If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. The delay period is only applicable when there is a reasonable expectation the surveillance will be met when performed. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed. If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered. When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.
SR 3.0.4	Entry into a MODE or other specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with LCO 3.0.4.

3.0 SR Applicability

SR 3.0.4 (continued)

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

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

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

APPLICABILITY: 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 is within the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Reactivity Balance

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Moderator Temperature Coefficient (MTC)

LCO 3.1.3 The MTC shall be maintained within the limits specified in the COLR. The maximum upper limit shall be $< 0.9 \times 10^{-4}$ $\Delta k/k/°F$ at < 95% RTP and $< 0.0 \times 10^{-4}$ $\Delta k/k/°F$ at $\geq$ 95% RTP.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.3.2	-----NOTE----- If the MTC is more negative than the COLR limit when extrapolated to the end of cycle, SR 3.1.3.2 may be repeated. Shutdown must occur prior to exceeding the minimum allowable boron concentration at which MTC is projected to exceed the lower limit. -----	
	Verify extrapolated MTC is within the lower limit specified in the COLR.	Each fuel cycle within 7 EFPDs after reaching an equilibrium boron concentration equivalent to 300 ppm

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 CONTROL ROD Group Alignment Limits

LCO 3.1.4 Each CONTROL ROD shall be OPERABLE.

AND

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CONTROL ROD not aligned to within 6.5% of its group average height.	A.1.1 Verify SDM is within limit.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.2 Reduce THERMAL POWER to ≤ 60% of the ALLOWABLE THERMAL POWER.	2 hours
	AND	
	A.3 Reduce the High Flux trip setpoint to ≤ 70% of the ALLOWABLE THERMAL POWER.	10 hours
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.4	Verify SDM is within limit.	Once per 12 hours
	AND		
	A.5	Verify the potential ejected rod worth is within the assumptions of the rod ejection analysis.	72 hours
	AND		
	A.6	-------------NOTE------------- Only required when THERMAL POWER is > 20% RTP. -------------------------------	
		Perform SR 3.2.5.1.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	6 hours
C. More than one CONTROL ROD not aligned within 6.5% of its group average height.	C.1.1	Verify SDM is within limit.	1 hour
	OR		
	C.1.2	Initiate boration to restore SDM to within limit.	1 hour
	AND		
	C.2	Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more CONTROL RODS inoperable.	D.1.1 Verify SDM is within limit.	1 hour
	<u>OR</u>	
	D.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	D.2 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify individual CONTROL ROD positions are within 6.5% of their group average height.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.2	Verify CONTROL ROD freedom of movement (trippability) by moving each individual CONTROL ROD that is not fully inserted $\geq$ 3% in any direction.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.3	------------------------------NOTE------------------------------ With rod drop times determined with less than four reactor coolant pumps operating, operation may proceed provided operation is restricted to the pump combination operating during the rod drop time determination. --	
	Verify the rod drop time for each CONTROL ROD, from the fully withdrawn position, is $\leq$ 1.58 seconds from power interruption at the CONTROL ROD drive cabinets to 3/4 insertion (25% withdrawn position) with $T_{avg} \geq 525°F$.	Prior to reactor criticality after each removal of the reactor vessel head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Safety Rod Insertion Limits

LCO 3.1.5 Each safety rod shall be fully withdrawn.

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 AXIAL POWER SHAPING ROD (APSR) Alignment Limits

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One APSR inoperable, not aligned within its limits, or both.	A.1 Perform SR 3.2.3.1.	2 hours <u>AND</u> 2 hours after each APSR movement
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

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

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Position Indicator Channels

LCO 3.1.7 The absolute position indicator channel and the relative position indicator channel for each CONTROL ROD and APSR shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each inoperable position indicator channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The relative position indicator channel inoperable for one or more rods.	A.1 Determine the absolute position indicator channel for the rod(s) is OPERABLE.	8 hours AND Once per 8 hours thereafter
B. The absolute position indicator channel inoperable for one or more rods.	B.1.1 Determine position of the rods with inoperable absolute position indicator by actuating the affected rod's zone position reference indicators. AND	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.1.2 Determine rods with inoperable position indicators are maintained at the zone reference indicator position and within the limits specified in LCO 3.1.5, "Safety Rod Insertion Limit," LCO 3.2.1, "Regulating Rod Insertion Limits," or LCO 3.2.2, "AXIAL POWER SHAPING ROD (APSR) Insertion Limits," as applicable.	8 hours AND Once per 8 hours thereafter
	OR	
	B.2.1 Place the control groups with nonindicating rods under manual control.	8 hours
	AND	
	B.2.2 Determine the position of the nonindicating rods indirectly with fixed incore instrumentation.	8 hours AND Once per 8 hours thereafter AND ---------NOTE--------- Not applicable during first 8 hour period ------------------------ 1 hour after motion of nonindicating rods, which exceeds 11% in one direction since the last determination of the rod's position

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR The absolute position indicator channel and the relative position indicator channel inoperable for one or more rods.	C.1 Declare the rod(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify the absolute position indicator channels and the relative position indicator channels agree within the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 PHYSICS TESTS Exceptions - MODE 1

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

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

may be suspended, provided:

a. THERMAL POWER is maintained ≤ 85% RTP;

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

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

F_Q and $F^N_{\Delta H}$ are maintained within the limits specified in the COLR; and

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

APPLICABILITY: MODE 1 during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes
	<u>AND</u>	
	A.2 Suspend PHYSICS TESTS exceptions.	1 hour
B. THERMAL POWER > 85% RTP. <u>OR</u> High Flux trip setpoint > 10% higher than PHYSICS TESTS power level. <u>OR</u> High Flux trip setpoint > 90% RTP. <u>OR</u> ----------NOTE---------- Only required when THERMAL POWER is > 20% RTP. ------------------------------- F_Q or $F^N_{\Delta H}$ not within limits.	B.1 Suspend PHYSICS TESTS exceptions.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	Verify THERMAL POWER is ≤ 85% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.1.8.2	-------------------------------NOTE------------------------------ Only required to be met when THERMAL POWER is > 20% RTP. --- Perform SR 3.2.5.1.	 In accordance with the Surveillance Frequency Control Program
SR 3.1.8.3	Verify High Flux trip setpoint is ≤ 10% RTP higher than the THERMAL POWER at which the test is performed, with a maximum setting of 90% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.1.8.4	Verify SDM is within the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.9 PHYSICS TESTS Exceptions - MODE 2

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

LCO 3.1.3, "Moderator Temperature Coefficient (MTC);"
LCO 3.1.4, "CONTROL ROD Group Alignment Limits;"
LCO 3.1.5, "Safety Rod Insertion Limits;"
LCO 3.1.6, "AXIAL POWER SHAPING ROD (APSR) Alignment Limits;"
LCO 3.2.1, "Regulating Rod Insertion Limits," for the sequence and overlap limits, and the insertion limits for the restricted operation region only;
LCO 3.2.2, "AXIAL POWER SHAPING ROD (APSR) Insertion Limits;" and
LCO 3.4.2, "RCS Minimum Temperature for Criticality"

may be suspended provided that:

a. THERMAL POWER is ≤ 5% RTP;

b. Reactor trip setpoints on the OPERABLE High Flux channels are set to ≤ 25% RTP;

c. Nuclear instrumentation high startup rate control rod withdrawal inhibit is OPERABLE;

d. SDM is within the limits specified in the COLR; and

e. RCS lowest loop average temperature is ≥ 520°F.

APPLICABILITY: During PHYSICS TESTS initiated in MODE 2.

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. SDM not within limit.	B.1 Initiate boration to restore SDM to within limit. <u>AND</u> B.2 Suspend PHYSICS TESTS exceptions.	15 minutes 1 hour
C. RCS lowest loop average temperature not within limit.	C.1 Suspend PHYSICS TESTS exceptions.	30 minutes
D. High Flux trip setpoint is not within limit. <u>OR</u> Nuclear instrumentation high startup rate control rod withdrawal inhibit inoperable.	D.1 Suspend PHYSICS TESTS exceptions.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.9.1	Perform a CHANNEL FUNCTIONAL TEST on each nuclear instrumentation high startup rate control rod withdrawal inhibit and High Flux channel.	Once within 24 hours prior to initiating PHYSICS TESTS
SR 3.1.9.2	Verify the RCS lowest loop average temperature is $\geq$ 520°F.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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

3.2 POWER DISTRIBUTION LIMITS

3.2.1 Regulating Rod Insertion Limits

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

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Regulating rod groups sequence or overlap limits not met.	C.1	------------NOTE------------ Only required when THERMAL POWER is > 20% RTP. ------------------------------	
		Perform SR 3.2.5.1.	2 hours
	<u>AND</u>		
	C.2	Restore regulating rod groups to within limits.	4 hours
D. Regulating rod groups inserted in unacceptable operation region.	D.1	Initiate boration to restore SDM to within the limit.	15 minutes
	<u>AND</u>		
	D.2.1	Restore regulating rod groups to within restricted operation region.	2 hours
	<u>OR</u>		
	D.2.2	Reduce THERMAL POWER to less than or equal to the THERMAL POWER allowed by the restricted operation region of the regulating rod group insertion limits.	2 hours
E. Required Action and associated Completion Time of Condition C or D not met.	E.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

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

3.2 POWER DISTRIBUTION LIMITS

3.2.2 AXIAL POWER SHAPING ROD (APSR) Insertion Limits

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.2 POWER DISTRIBUTION LIMITS

3.2.3 AXIAL POWER IMBALANCE Operating Limits

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.2 POWER DISTRIBUTION LIMITS

3.2.4 QUADRANT POWER TILT (QPT)

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. QPT greater than the steady state limit and less than or equal to the transient limit.	A.1.1 Perform SR 3.2.5.1.	Once per 2 hours
	OR	
	A.1.2.1 Reduce THERMAL POWER ≥ 2% RTP from the ALLOWABLE THERMAL POWER for each 1% of QPT greater than the steady state limit.	2 hours OR 2 hours after last performance of SR 3.2.5.1
	AND	
	A.1.2.2 Reduce High Flux trip setpoint and Flux-ΔFlux-Flow trip setpoint ≥ 2% RTP for each 1% of QPT greater than the steady state limit.	10 hours
	AND	
	A.2 Restore QPT to less than or equal to the steady state limit.	24 hours from discovery of failure to meet the LCO

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. QPT greater than the transient limit and less than or equal to the maximum limit due to misalignment of a CONTROL ROD or an APSR.	B.1	Reduce THERMAL POWER $\geq$ 2% RTP from ALLOWABLE THERMAL POWER for each 1% of QPT greater than the steady state limit.	30 minutes
	AND		
	B.2	Restore QPT to less than or equal to the transient limit.	2 hours
C. Required Action and associated Completion Time of Condition A or B not met. OR QPT greater than the transient limit and less than or equal to the maximum limit due to causes other than the misalignment of either CONTROL ROD or APSR.	C.1	Reduce THERMAL POWER to < 60% of the ALLOWABLE THERMAL POWER.	2 hours
	AND		
	C.2	Reduce High Flux trip setpoint to $\leq$ 65.5% of the ALLOWABLE THERMAL POWER.	10 hours
D. Required Action and associated Completion Time for Condition C not met. OR QPT greater than the maximum limit.	D.1	Reduce THERMAL POWER to $\leq$ 20% RTP.	2 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	Verify QPT is within limits as specified in the COLR.	In accordance with the Surveillance Frequency Control Program <u>AND</u> --------NOTE-------- Only required to be performed if both Condition C was entered and THERMAL POWER is ≥ 60% of ALLOWABLE THERMAL POWER ------------------------ When QPT has been restored to less than or equal to the steady state limit, once every hour for 12 hours, or until verified acceptable at ≥ 95% RTP

3.2 POWER DISTRIBUTION LIMITS

3.2.5 Power Peaking Factors

LCO 3.2.5 F_Q and $F^N_{\Delta H}$ shall be within the limits specified in the COLR.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. F_Q not within limit.	A.1	Reduce THERMAL POWER ≥ 1% RTP for each 1% that F_Q exceeds limit.	15 minutes
	<u>AND</u>		
	A.2	Reduce High Flux trip setpoint and Flux-ΔFlux-Flow trip setpoint ≥ 1% RTP for each 1% that F_Q exceeds limit.	10 hours
	<u>AND</u>		
	A.3	Restore F_Q to within limit.	24 hours
B. $F^N_{\Delta H}$ not within limit.	B.1	Reduce THERMAL POWER ≥ RH(%) RTP (specified in the COLR) for each 1% that $F^N_{\Delta H}$ exceeds limit.	15 minutes
	<u>AND</u>		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Reduce High Flux trip setpoint and Flux-ΔFlux-Flow trip setpoint ≥ RH(%) RTP (specified in the COLR) for each 1% that $F^N_{\Delta H}$ exceeds limit. AND B.3 Restore $F^N_{\Delta H}$ to within limit.	10 hours 24 hours
C. Required Action and associated Completion Time not met.	C.1 Reduce THERMAL POWER ≤ 20% RTP.	2 hours

SURVEILLANCE REQUIREMENTS

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

3.3 INSTRUMENTATION

3.3.1 Reactor Protection System (RPS) Instrumentation

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

AND

The ultrasonic flow meter (UFM) instrumentation shall be used to perform SR 3.3.1.2 when THERMAL POWER is > 50% RTP.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Place channel in bypass or trip.	1 hour
B. Two channels inoperable.	B.1 Place one channel in trip. AND B.2 Place second channel in bypass.	1 hour 1 hour
C. Required Action and associated Completion Time of Condition A or B not met. OR Three or more channels inoperable.	C.1 Enter the Condition referenced in Table 3.3.1-1 for the Function.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.1-1.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	--------------NOTE------------- Only applicable to Functions 1.a, 3, and 6. ---------------------------------- Open all CONTROL ROD drive (CRD) trip breakers.	6 hours
E. As required by Required Action C.1 and referenced in Table 3.3.1-1.	E.1	Open all CRD trip breakers.	6 hours
F. UFM instrumentation not used to perform SR 3.3.1.2. AND THERMAL POWER > 50% RTP. AND Four reactor coolant pumps (RCPs) operating.	F.1.1	Initiate action to reduce THERMAL POWER to ≤ 98.4% RTP.	Immediately
		AND	
	F.1.2	Reset High Flux – High Setpoint Allowable Value to ≤ 103.3% RTP.	10 hours
	OR		
	F.2.1	Perform SR 3.3.1.2 using calorimetric heat balance based on feedwater flow venturi readings normalized to the last UFM readings provided THERMAL POWER has been continuously maintained > 90% RTP since the previous calorimetric heat balance based on UFM readings.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. (continued)	AND F.2.2 Initiate action to reduce THERMAL POWER to ≤ 98.4% RTP. AND F.2.3 Reset High Flux – High Setpoint Allowable Value to ≤ 103.3% RTP.	 72 hours since the last calorimetric heat balance based on UFM readings 82 hours since the last calorimetric heat balance based on UFM readings
G. UFM instrumentation not used to perform SR 3.3.1.2. AND THERMAL POWER > 50% RTP. AND Three RCPs operating.	G.1 Initiate action to reduce THERMAL POWER to ≤ 73.8% RTP.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---

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

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2	-----------------------------NOTES---------------------------- 1. Adjust power range channel output if the calorimetric heat balance calculation results exceed power range channel output by > 2% RTP. 2. Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. --- Compare result of calorimetric heat balance calculation to power range channel output.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3	-----------------------------NOTES---------------------------- 1. Neutron detectors are excluded from CHANNEL CALIBRATION. 2. For Function 8, flow rate measurement sensors may be excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.4	-----NOTES----- 1. Adjust the power range channel imbalance output if the absolute value of the offset error is ≥ 2.5%. 2. Not required to be performed until 24 hours after THERMAL POWER is ≥ 50% RTP. ----- Compare results of out of core measured AXIAL POWER IMBALANCE (API_0) to incore measured AXIAL POWER IMBALANCE (API_1) as follows: $(RTP/TP)(API_0 - API_1)$ = offset error.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.5	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.6	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.7	-----NOTE----- For Function 8, flow rate measurement sensors are only required to be calibrated. ----- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	-------------------------------NOTE------------------------------ Neutron detectors are excluded from RPS RESPONSE TIME testing. --- Verify that RPS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. High Flux -				
a. High Setpoint	1,2[(a)],3[(b)]	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3[(c)(d)] SR 3.3.1.8	≤ 104.9% RTP[(e)] with four pumps operating, and ≤ 80.6% RTP when reset for three pumps operating per LCO 3.4.4, "RCS Loops - MODES 1 and 2"
b. Low Setpoint	2[(f)],3[(f)],4[(f)], 5[(f)]	E	SR 3.3.1.1 SR 3.3.1.3	≤ 5% RTP
2. RC High Temperature	1,2	D	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.7	≤ 618°F
3. RC High Pressure	1,2[(a)],3[(b)]	D	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.8	≤ 2355 psig
4. RC Low Pressure	1,2[(a)]	D	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.8	≥ 1900 psig

(a) When not in shutdown bypass operation.

(b) With any CRD trip breaker in the closed position, the CRD System capable of rod withdrawal, and not in shutdown bypass operation.

(c) 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.

(d) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint, or a value that is more conservative than the Limiting Trip Setpoint; otherwise, the channel shall be declared inoperable. The Limiting Trip Setpoint and the methodology used to determine the Limiting Trip Setpoint, the predefined as-found acceptance criteria band and the as-left setpoint tolerance band are specified in the Technical Requirements Manual.

(e) ≤ 103.3% RTP when reset per ACTION F due to UFM instrumentation not being used to perform SR 3.3.1.2 when THERMAL POWER is > 50% RTP.

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

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. RC Pressure - Temperature	1,2[a]	D	SR 3.3.1.1 SR 3.3.1.5[c][d] SR 3.3.1.7[c][d]	$\geq$ (16.25 * T_{out} – 7899.0) psig
6. Containment High Pressure	1,2,3[g]	D	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.6	$\leq$ 4 psig
7. High Flux/Number of Reactor Coolant Pumps On	1,2[a]	D	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.8	$\leq$ 55.1% RTP with one pump operating in each loop, $\leq$ 0.0% RTP with two pumps operating in one loop and no pumps operating in the other loop, $\leq$ 0.0% RTP with one pump or no pumps operating
8. Flux - ΔFlux - Flow	1,2[a]	D	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.7 SR 3.3.1.8	Flux – ΔFlux – Flow Allowable Value envelope in COLR
9. Shutdown Bypass High Pressure	2[f],3[f],4[f], 5[f]	E	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.7	$\leq$ 1820 psig

(a) When not in shutdown bypass operation.

(c) 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.

(d) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint, or a value that is more conservative than the Limiting Trip Setpoint; otherwise, the channel shall be declared inoperable. The Limiting Trip Setpoint and the methodology used to determine the Limiting Trip Setpoint, the predefined as-found acceptance criteria band and the as-left setpoint tolerance band are specified in the Technical Requirements Manual.

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

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

3.3 INSTRUMENTATION

3.3.2 Reactor Protection System (RPS) Manual Reactor Trip

LCO 3.3.2 Two RPS Manual Reactor Trip channels shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One Manual Reactor Trip channel inoperable.	A.1	Restore Manual Reactor Trip channel to OPERABLE status.	48 hours
B. Two Manual Reactor Trip channels inoperable.	B.1	Restore one Manual Reactor Trip channel to OPERABLE status.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Open all CRD trip breakers.	6 hours
D. Required Action and associated Completion Time of Condition A or B not met in MODE 4 or 5.	D.1	Open all CRD trip breakers.	6 hours

SURVEILLANCE REQUIREMENTS

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

3.3 INSTRUMENTATION

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

LCO 3.3.3 Four RTMs shall be OPERABLE.

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

ACTIONS

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

3.3 INSTRUMENTATION

3.3.4 CONTROL ROD Drive (CRD) Trip Devices

LCO 3.3.4 The following CRD trip devices shall be OPERABLE:

a. Four CRD trip breakers; and

b. Two silicon controlled rectifier (SCR) relay trip channels.

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

ACTIONS

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

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3. AND C.2.1 Open all CRD trip breakers. OR C.2.2 Remove power from all CRD trip breakers.	6 hours 6 hours 6 hours
D. Required Action and associated Completion Time of Condition A or B not met in MODE 4 or 5.	D.1 Open all CRD trip breakers. OR D.2 Remove power from all CRD trip breakers.	6 hours 6 hours
E. ------------NOTE------------ Required Action E.1 shall be completed whenever this Condition is entered. -------------------------------- One or both SCR relay trip channels inoperable.	E.1 Restore the channel(s) to OPERABLE status.	Prior to entering MODE 4, when in MODE 5 for $\geq$ 24 hours

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.2	Perform CHANNEL FUNCTIONAL TEST on SCR relay trip channels.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.5 Safety Features Actuation System (SFAS) Instrumentation

LCO 3.3.5 Four channels of SFAS instrumentation for each Parameter in Table 3.3.5-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5-1.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Parameters with one channel inoperable.	A.1	Place channel in trip.	1 hour
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> One or more Parameters with two or more channels inoperable.	B.1 <u>AND</u> B.2	Be in MODE 3. -----NOTE----- Only required for Reactor Coolant System (RCS) Pressure - Low channels. --- Reduce RCS pressure < 1800 psig.	6 hours 36 hours
	<u>AND</u>		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 ---------------NOTE-------------- Only required for RCS Pressure - Low Low channels. ------------------------------------	
	Reduce RCS pressure < 660 psig.	36 hours
	<u>AND</u>	
	B.4 ---------------NOTE-------------- Only required for Containment Pressure - High, Containment Pressure - High High, and Borated Water Storage Tank - Low Low channels. ------------------------------------	
	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

---NOTE---
Refer to Table 3.3.5-1 to determine which SRs apply to each SFAS instrumentation Parameter.

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.5.2	-------------------------------NOTE------------------------------ When an SFAS channel is placed in an inoperable status solely for performance of this Surveillance, entry into associated Conditions and Required Actions may be delayed for up to 8 hours, provided two other channels of the same SFAS instrumentation Parameter are OPERABLE. -- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.5	Verify SFAS RESPONSE TIME within limits.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5-1 (page 1 of 1)
Safety Features Actuation System Instrumentation

PARAMETER	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Coolant System Pressure - Low	1, 2, 3[(a)]	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.4 SR 3.3.5.5	≥ 1576.2 psig
2. Reactor Coolant System Pressure - Low Low	1, 2, 3[(b)]	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.4 SR 3.3.5.5	≥ 441.42 psig
3. Containment Pressure - High	1, 2, 3, 4	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3 SR 3.3.5.5	≤ 19.38 psia
4. Containment Pressure - High High	1, 2, 3, 4	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3 SR 3.3.5.5	≤ 41.65 psia
5. Borated Water Storage Tank Level - Low Low	1, 2, 3, 4	SR 3.3.5.1 SR 3.3.5.2 SR 3.3.5.3	≥ 101.6 and ≤ 115.4 inches of water

(a) With Reactor Coolant System (RCS) pressure ≥ 1800 psig.

(b) With RCS pressure ≥ 660 psig.

3.3 INSTRUMENTATION

3.3.6 Safety Features Actuation System (SFAS) Manual Initiation

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

a. SFAS; and

b. Containment Spray.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SFAS Functions with one channel inoperable.	A.1 Restore channel 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 3.3.6.1 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.7 Safety Features Actuation System (SFAS) Automatic Actuation Logic

LCO 3.3.7 All the SFAS automatic actuation output logics shall be OPERABLE.

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

ACTIONS

---NOTE---

Separate Condition entry is allowed for each automatic actuation output logic.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more automatic actuation output logics inoperable.	A.1 Place associated output logic in trip.	1 hour
	<u>OR</u>	
	A.2 Place associated component(s) in engineered safety features configuration.	1 hour
	<u>OR</u>	
	A.3 Declare the associated component(s) inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

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

3.3 INSTRUMENTATION

3.3.8 Emergency Diesel Generator (EDG) Loss of Power Start (LOPS)

LCO 3.3.8 Two channels of Loss of Voltage Function and two channels of Degraded Voltage Function EDG LOPS instrumentation per bus shall be OPERABLE.

---NOTE---
All Degraded Voltage channels may be bypassed for ≤ 1 minute when starting a reactor coolant pump or circulating water pump.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated EDG 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 channel per bus inoperable.	A.1	Place channel in trip.	1 hour
B. One or more Functions with two channels per bus inoperable.	B.1	Restore one channel to OPERABLE status.	1 hour
C. Required Action and associated Completion Time not met.	C.1	Declare associated EDG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----
When EDG LOPS instrumentation is placed in an inoperable status solely for performance of a Surveillance, entry into associated Conditions and Required Actions may be delayed up to 2 hours, provided the other channel monitoring the Function for the bus is OPERABLE and the two channels monitoring the Function for the other bus are OPERABLE.

	SURVEILLANCE	FREQUENCY
SR 3.3.8.1	-----NOTE----- The as-left instrument setting shall be returned to a setting within the tolerance band of the trip setpoint established to protect the safety limit. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2	-----NOTE----- The as-left instrument setting shall be returned to a setting within the tolerance band of the trip setpoint established to protect the safety limit. ---------- Perform CHANNEL CALIBRATION with Allowable Value as follows: a. Degraded Voltage ≥ 3712 volts (dropout) and ≤ 3771 volts (pickup) with a time delay of ≥ 6.4 seconds and ≤ 7.9 seconds; and b. Loss of Voltage ≥ 2071 volts (dropout) and ≤ 2492 volts (pickup) with a time delay of ≥ 0.42 seconds and ≤ 0.58 seconds.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUCTION

3.3.9 Source Range Neutron Flux

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

-----NOTE-----
High voltage to detector may be de-energized with neutron flux > 1E-10 amp on intermediate range channels.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One source range neutron flux channel inoperable with neutron flux ≤ 1E-10 amp on the intermediate range neutron flux channels.	A.1	Restore channel to OPERABLE status.	Prior to increasing neutron flux
B. Two source range neutron flux channels inoperable with neutron flux ≤ 1E-10 amp on the intermediate range neutron flux channels.	B.1	-----NOTE----- Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. --------------- Suspend operations involving positive reactivity changes.	Immediately
	AND		
	B.2	Initiate action to insert all CONTROL RODS.	Immediately
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Open CONTROL ROD drive trip breakers. AND B.4 Verify SDM is within the limits specified in the COLR.	1 hour 1 hour AND Once per 12 hours thereafter
C. One or more source range neutron flux channels inoperable with neutron flux > 1E-10 amp on the intermediate range neutron flux channels.	C.1 Initiate action to restore affected channel(s) to OPERABLE status.	1 hour

SURVEILLANCE REQUIREMENTS

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

3.3 INSTRUMENTATION

3.3.10 Intermediate Range Neutron Flux

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

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One channel inoperable.	A.1	Reduce neutron flux to ≤ 1E-10 amp.	2 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two channels inoperable.	B.1	---------------NOTE-------------- Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. ------------------------------------- Suspend operations involving positive reactivity changes.	Immediately
	<u>AND</u>		
	B.2	Open CRD trip breakers.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.10.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.10.2	-------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.11 Steam and Feedwater Rupture Control System (SFRCS) Instrumentation

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

APPLICABILITY: According to Table 3.3.11-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel inoperable.	A.1 Place channel in trip.	1 hour
B. Required Action and associated Completion Time of Condition A not met. OR One or more Functions with two or more channels inoperable.	B.1 Be in MODE 3. AND B.2 -----NOTE----- Only required for Function 1. ---------- Reduce main steam line pressure < 750 psig. AND B.3 -----NOTE----- Only required for Functions 2, 3, and 4. ---------- Be in MODE 4.	6 hours 12 hours 12 hours

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.11.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.11.2	-------------------------------NOTE------------------------------ When a channel is placed in an inoperable status solely for performance of the CHANNEL FUNCTIONAL TEST, entry into the associated Conditions and Required Actions may be delayed for up to 8 hours provided the channels providing input to the other actuation channel are OPERABLE. -- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.11.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.11.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.11.5	Verify SFRCS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

Table 3.3.11-1 (page 1 of 1)
Steam and Feedwater Rupture Control System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Pressure – Low	1,2,3[(a)]	4 per steam line	SR 3.3.11.1 SR 3.3.11.2[(b)(c)] SR 3.3.11.3[(b)(c)] SR 3.3.11.5	≥ 600.2 psig
2. Feedwater/Steam Generator Differential Pressure – High	1,2,3	4 per feedwater line	SR 3.3.11.1 SR 3.3.11.2[(b)(c)] SR 3.3.11.3[(b)(c)] SR 3.3.11.5	≤ 176.8 psid
3. Steam Generator Level – Low	1,2,3	4 per steam generator (SG)	SR 3.3.11.1 SR 3.3.11.2[(b)(c)] SR 3.3.11.4[(b)(c)] SR 3.3.11.5	≥ 17.3 inches
4. Loss of RCPs	1,2,3	4	SR 3.3.11.1 SR 3.3.11.2 SR 3.3.11.3 SR 3.3.11.5	≤ 1384.6 amps and ≥ 106.5 amps

(a) With main steam line pressure ≥ 750 psig during a shutdown and with main steam line pressure > 800 psig during a heatup.

(b) 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.

(c) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint, or a value that is more conservative than the Limiting Trip Setpoint; otherwise, the channel shall be declared inoperable. The Limiting Trip Setpoint and the methodology used to determine the Limiting Trip Setpoint, the predefined as-found acceptance criteria band and the as-left setpoint tolerance band are specified in the Technical Requirements Manual.

3.3 INSTRUMENTATION

3.3.12 Steam and Feedwater Rupture Control System (SFRCS) Manual Initiation

LCO 3.3.12 One manual initiation push button for each of the following SFRCS Functions shall be OPERABLE:

a. Auxiliary Feedwater Pump Turbine 1 Initiation;

b. Auxiliary Feedwater Pump Turbine 2 Initiation;

c. Auxiliary Feedwater Pump Turbine 1 Initiation and Steam Generator 1 Isolation; and

d. Auxiliary Feedwater Pump Turbine 2 Initiation and Steam Generator 2 Isolation.

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 SFRCS Functions inoperable.	A.1 Restore SFRCS Function to OPERABLE status.	48 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

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

3.3 INSTRUMENTATION

3.3.13 Steam and Feedwater Rupture Control System (SFRCS) Actuation

LCO 3.3.13 Channels 1 and 2 of each Logic Function shown below shall be OPERABLE:

a. Auxiliary Feedwater Initiation;

b. Auxiliary Feedwater and Main Steam Valve Control;

c. Main Steam Line Isolation; and

d. Main Feedwater Isolation.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Logic Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channel 1 Logic Functions inoperable with all channel 2 Logic Functions OPERABLE. <u>OR</u> One or more channel 2 Logic Functions inoperable with all channel 1 Logic Functions OPERABLE.	A.1 Restore inoperable channel 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 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.13.1	-------------------------------NOTE------------------------------ When a channel is placed in an inoperable status solely for performance of the CHANNEL FUNCTIONAL TEST, entry into the associated Conditions and Required Actions may be delayed for up to 8 hours provided the other actuation channel is OPERABLE. --	
	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.14 Fuel Handling Exhaust - High Radiation

LCO 3.3.14 Two channels of Fuel Handling Exhaust - High Radiation shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Declare the associated Spent Fuel Pool Area Emergency Ventilation System train inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.14.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.14.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.14.3	Perform CHANNEL CALIBRATION with a trip setpoint of $\leq$ 2 times Background.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.15 Station Vent Normal Range Radiation Monitoring

LCO 3.3.15 Two channels of station vent normal range radiation monitoring instrumentation shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One channel inoperable.	A.1	Isolate the Control Room Normal Ventilation System.	7 days
	AND		
	A.2	-----NOTE----- Only applicable in MODES 1, 2, 3, and 4. ---------- Place one OPERABLE Control Room Emergency Ventilation System (CREVS) train in operation.	7 days
B. Two channels inoperable.	B.1	Isolate the Control Room Normal Ventilation System.	1 hour
	AND		
	B.2	-----NOTE----- Only applicable in MODES 1, 2, 3, and 4. ---------- Place one OPERABLE CREVS train in operation.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 5.	36 hours
D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies.	D.1	Suspend movement of irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.15.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.15.2	-------------------------------NOTE------------------------------ When a channel is placed in an inoperable status solely for performance of this Surveillance, entry into associated Conditions and Required Actions may be delayed for up to 3 hours provided the other channel is OPERABLE. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.15.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.16 Anticipatory Reactor Trip System (ARTS) Instrumentation

LCO 3.3.16 The ARTS instrumentation channels for each Function in Table 3.3.16-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.16-1.

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 -----NOTE----- Only applicable for Function 3. ---------------	
	Trip the control rod drive trip breaker associated with the inoperable channel.	1 hour
	AND	
	A.2 -----NOTE----- Only applicable for Functions 1 and 2. ---------------	
	Restore required channel to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 ---------------NOTE-------------- Only applicable for Function 1. ------------------------------------- Reduce THERMAL POWER to $\leq$ 45% RTP.	6 hours
	AND	
	B.2 ---------------NOTE-------------- Only applicable for Functions 2 and 3. ------------------------------------- Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

---NOTE---
Refer to Table 3.3.16-1 to determine which SRs apply to each ARTS instrumentation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.16.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.16.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.16.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.16-1 (page 1 of 1)
Anticipatory Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
1. Turbine Trip	> 45% RTP	3	SR 3.3.16.1 SR 3.3.16.3
2. Trip of Both Main Feed Pump Turbines	1	3	SR 3.3.16.1 SR 3.3.16.3
3. Output Logic	1	4	SR 3.3.16.2

3.3 INSTRUMENTATION

3.3.17 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.17 The PAM instrumentation for each Function in Table 3.3.17-1 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	-----NOTE----- Only applicable to Functions other than Functions 13, 14, and 15. ----------	
		Initiate action in accordance with Specification 5.6.5.	Immediately
	OR		
	B.2	-----NOTE----- Only applicable to Functions 13, 14, and 15. ----------	
		Enter the Condition referenced in Table 3.3.17-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.17-1 for the channel.	Immediately
E. As required by Required Action B.2 or D.1 and referenced in Table 3.3.17-1.	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 3.3.17-1	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---

These SRs apply to each PAM instrumentation Function in Table 3.3.17-1 except where identified in the SR.

SURVEILLANCE		FREQUENCY
SR 3.3.17.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.17.2	-------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION for Functions 1, 11, 12, 14, 15, 16, and 17.	In accordance with the Surveillance Frequency Control Program
SR 3.3.17.3	Perform CHANNEL CALIBRATION for Functions 2, 3, 4, 5, 6, 7, 8, 9, 10, and 13.	In accordance with the Surveillance Frequency Control Program

Table 3.3.17-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION B.2 or D.1
1.	Wide Range Neutron Flux	2	E
2.	Reactor Coolant Loop Outlet Temperature	2 per loop	E
3.	Reactor Coolant Loop Pressure	2 per loop	E
4.	Reactor Coolant Hot Leg Level (Wide Range)	2	E
5.	Containment Water Level (Wide Range)	2	E
6.	Containment Pressure (Wide Range)	2	E
7.	Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path[(a)(b)]	E
8.	Containment High Range Radiation	2	F
9.	Pressurizer Level	2	E
10.	Steam Generator Startup Range Level	2 per SG	E
11.	Incore Thermocouples	2 per core quadrant	E
12.	Auxiliary Feedwater Flow Rate	2 per SG	E
13.	Steam Generator Outlet Steam Pressure	1 per SG	E
14.	High Pressure Injection Flow	1 per injection line	E
15.	Low Pressure Injection (Decay Heat Removal) Flow	1 per train	E
16.	Borated Water Storage Tank Level	2	E
17.	Neutron Flux (Source Range)	2	E

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

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

3.3 INSTRUMENTATION

3.3.18 Remote Shutdown System

LCO 3.3.18 The remote shutdown monitoring instrumentation Functions shall be OPERABLE.

AND

The control circuit and transfer switch Functions required for a serious control room or cable spreading room fire 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 of Condition A not met for remote shutdown monitoring instrumentation Functions.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	12 hours
C. Required Action and associated Completion Time of Condition A not met for control circuit and transfer switch Functions.	C.1	Initiate action in accordance with Specification 5.6.7.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.18.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program
SR 3.3.18.2	-------------------------------NOTE------------------------------ Reactor trip breaker indication and control rod position switches are excluded from this Surveillance. --- Perform CHANNEL CALIBRATION for each required instrumentation channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.18.3	Verify each control circuit and transfer switch required for a serious control room or cable spreading room fire is capable of performing the intended function.	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 loop pressure, hot leg temperature, and RCS total flow rate shall be within the limits specified below:

a. With four reactor coolant pumps (RCPs) operating:

RCS loop pressure shall be ≥ 2064.8 psig, RCS hot leg temperature shall be ≤ 610°F, and RCS total flow rate shall be ≥ 389,500 gpm; and

b. With three RCPs operating:

RCS loop pressure shall be ≥ 2060.8 psig, RCS hot leg temperature shall be ≤ 610°F, and RCS total flow rate shall be ≥ 290,957 gpm.

APPLICABILITY: MODE 1.

----------NOTE----------
RCS loop 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	-------------------------------NOTE------------------------------ With three RCPs operating, the limits are applied to the loop with two RCPs in operation. --- Verify RCS loop pressure ≥ 2064.8 psig with four RCPs operating or ≥ 2060.8 psig with three RCPs operating.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.2	-------------------------------NOTE------------------------------ With three RCPs operating, the limits are applied to the loop with two RCPs in operation. --- Verify RCS hot leg temperature ≤ 610°F.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.3	Verify RCS total flow ≥ 389,500 gpm with four RCPs operating or ≥ 290,957 gpm with three RCPs operating.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.4	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after stable thermal conditions are established at ≥ 70% RTP. --- Verify RCS total flow rate is within limit by measurement.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2 Each RCS loop average temperature (T_{avg}) shall be ≥ 525°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 ≥ 525°F.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3 RCS pressure, RCS temperature, and RCS heatup and cooldown rates shall be maintained within 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. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours
C. ----------NOTE---------- Required Action C.2 shall be completed whenever this Condition is entered. --------------------------- Requirements of LCO not met in other than MODE 1, 2, 3, or 4.	C.1 Initiate action to restore parameter(s) to within limit. AND C.2 Determine RCS is acceptable for continued operation.	Immediately Prior to entering MODE 4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	-------------------------------NOTE------------------------------ Only required to be performed during RCS heatup and cooldown operations and RCS 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 Two RCS Loops shall be in operation, with:

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

b. Three RCPs operating and:

1. THERMAL POWER is < 80.6% RTP;

2. LCO 3.3.1, "Reactor Protection System (RPS) Instrumentation," Function 1.a (High Flux - High Setpoint), Allowable Value of Table 3.3.1-1 is reset for three RCPs operating; and

3. LCO 3.3.1, Function 8 (Flux-ΔFlux-Flow), Allowable Value of Table 3.3.1-1 is reset for three RCPs operating.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO 3.4.4.b.2 not met.	A.1 Satisfy the requirements of LCO 3.4.4.b.2.	10 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Requirements of LCO not met for reasons other than Condition A.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODE 3

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

APPLICABILITY: MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One RCS loop inoperable.	A.1	Restore RCS loop to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 4.	12 hours
C. Two RCS loops inoperable. OR Required RCS 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.	Immediately
	AND		
	C.2	Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify one RCS loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.5.2	Verify, for each required RCS loop, SG secondary side water level is: a. ≥ 18 inches above the lower tube sheet if associated reactor coolant pump is operating; or b. ≥ 35 inches above the lower tube sheet if reactor coolant pumps are not operating.	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 available to each required pump.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops - MODE 4

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

-----NOTE-----
All reactor coolant pumps (RCPs) and DHR pumps may be de-energized for ≤ 1 hour 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, "SHUTDOWN MARGIN (SDM)"; and

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

APPLICABILITY: MODE 4.

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two required loops inoperable. <u>OR</u> 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. <u>AND</u> B.2 Initiate action to restore one loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required DHR or RCS loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.6.2	Verify, for each required RCS loop, SG secondary side water level is: a. ≥ 18 inches above the lower tube sheet if associated reactor coolant pump is operating; or b. ≥ 35 inches above the lower tube sheet if reactor coolant pumps are not operating.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 available to each required pump.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7

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

-----NOTE-----

The DHR pump of the loop in operation may be removed from operation for ≤ 1 hour 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, "SHUTDOWN MARGIN (SDM)"; and

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

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required loop inoperable.	A.1	Initiate action to restore a second loop to OPERABLE status.	Immediately
B. Two required loops inoperable. <u>OR</u> 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
	<u>AND</u>		
	B.2	Initiate action to restore one loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify required DHR or RCS loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.2	Verify, for each required RCS loop, SG secondary side water level is ≥ 35 inches above the lower tube sheet.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.3	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after a required pump is not in operation. -- Verify correct breaker alignment and indicated power available to each required DHR pump.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

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

-----NOTES-----

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

   a. The maximum RCS temperature is ≤ 190°F;

   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, "SHUTDOWN MARGIN (SDM);" and

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

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

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No required DHR loop OPERABLE. OR Required DHR loop not in operation.	B.1 Suspend operations that would cause introduction 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 DHR loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

a. Pressurizer water level ≤ 228 inches; and

b. A minimum of 85 kW of essential pressurizer heaters OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Restore level to within limit.	1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	6 hours 12 hours
C. Capacity of essential pressurizer heaters less than limit.	C.1 Restore essential pressurizer heater capacity.	72 hours
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 3.4.9.1	Verify pressurizer water level ≤ 228 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2	Verify capacity of essential pressurizer heaters is ≥ 85 kW.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 Two pressurizer safety valves shall be OPERABLE with lift settings $\leq$ 2525 psig.

APPLICABILITY: MODES 1, 2, and 3.

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 of Condition A not met. OR Two pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 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 Pilot Operated Relief Valve (PORV)

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

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. PORV inoperable.	A.1 Close block valve.	1 hour
	AND	
	A.2 Remove power from block valve.	1 hour
B. Block valve inoperable.	B.1 Close block valve.	1 hour
	AND	
	B.2 Remove power from block valve.	1 hour
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	AND	
	C.2 Be in MODE 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 one complete cycle of the block valve.	 In accordance with the Surveillance Frequency Control Program
SR 3.4.11.2	Perform one complete cycle of the PORV.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Low Temperature Overpressure Protection (LTOP)

LCO 3.4.12 The Decay Heat Removal (DHR) System relief valve shall be OPERABLE with:

a. A lift setting of ≤ 330 psig; and

b. The Reactor Coolant System (RCS) to DHR System isolation valves open with control power removed.

APPLICABILITY: MODES 4 and 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DHR System relief valve inoperable due to one or more RCS to DHR System isolation valves closed.	A.1 Open RCS to DHR System isolation bypass valves. AND A.2 Verify RCS to DHR System isolation bypass valves open.	1 hour Once per 24 hours
B. DHR System relief valve inoperable due to one or more RCS to DHR System isolation valves with control power not removed.	B.1 Remove control power from RCS to DHR System isolation valves.	1 hour
C. DHR System relief valve inoperable for reasons other than Condition A or B.	C.1 Restore DHR System relief valve to OPERABLE status.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and Associated Completion Time not met.	D.1	Disable capability of both high pressure injection pumps to inject water into the RCS.	1 hour
	<u>AND</u>		
	D.2	Disable makeup pump suction automatic transfer to the borated water storage tank on low makeup tank level.	8 hours
	<u>AND</u>		
	D.3	Verify makeup tank level ≤ 73 inches.	8 hours
	<u>AND</u>		
	D.4	Verify RCS pressure and pressurizer level in Acceptable Region of Figure 3.4.12-1 or 3.4.12-2, as applicable.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify RCS to DHR isolation valves open with control power removed.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.2	Verify DHR System relief valve lift setpoint ≤ 330 psig in accordance with the INSERVICE TESTING PROGRAM.	In accordance with the INSERVICE TESTING PROGRAM

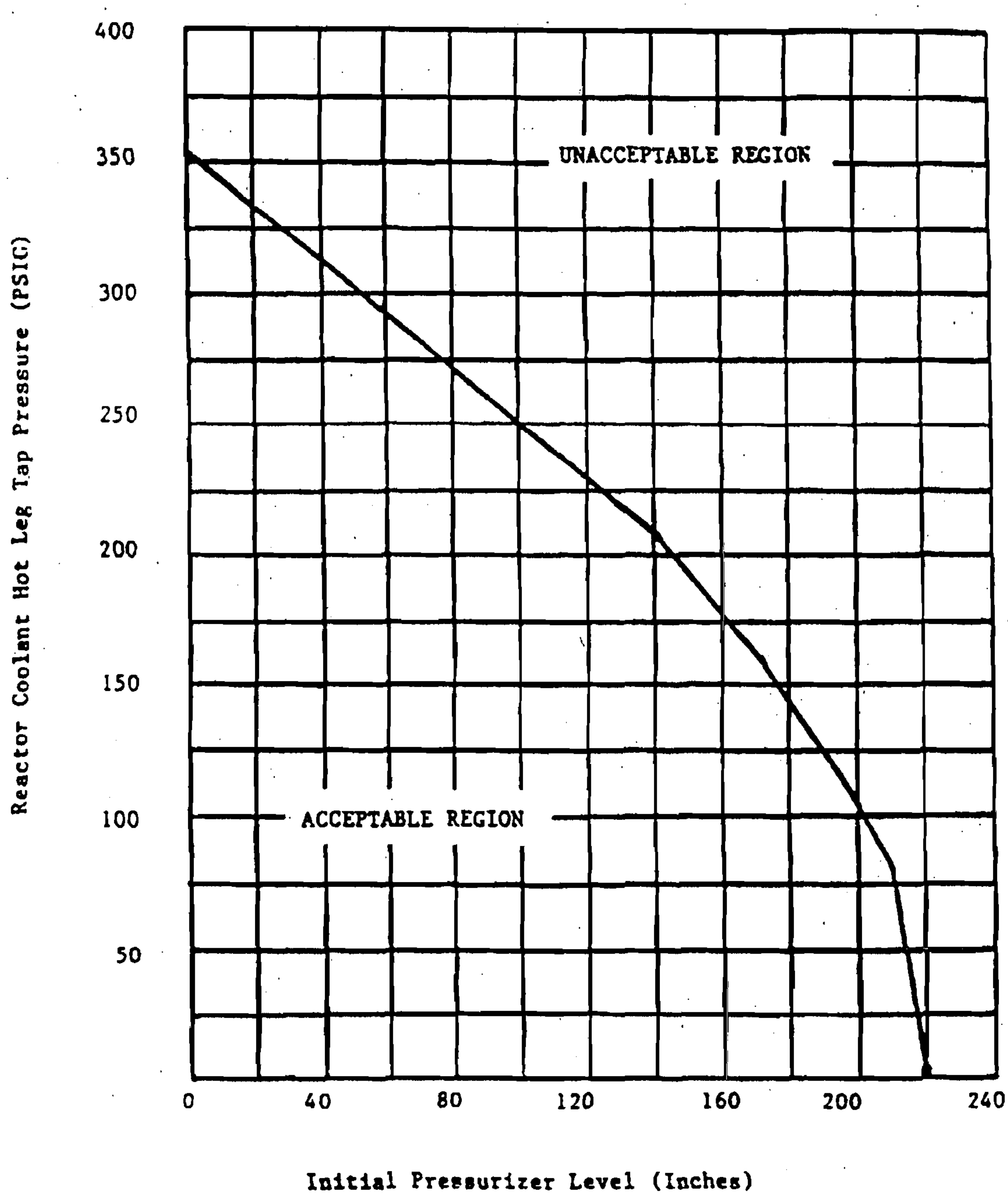

Figure 3.4.12-1
RCS Pressure Versus Pressurizer Level Limit
for Inoperable DHR System Relief Valve in MODE 4

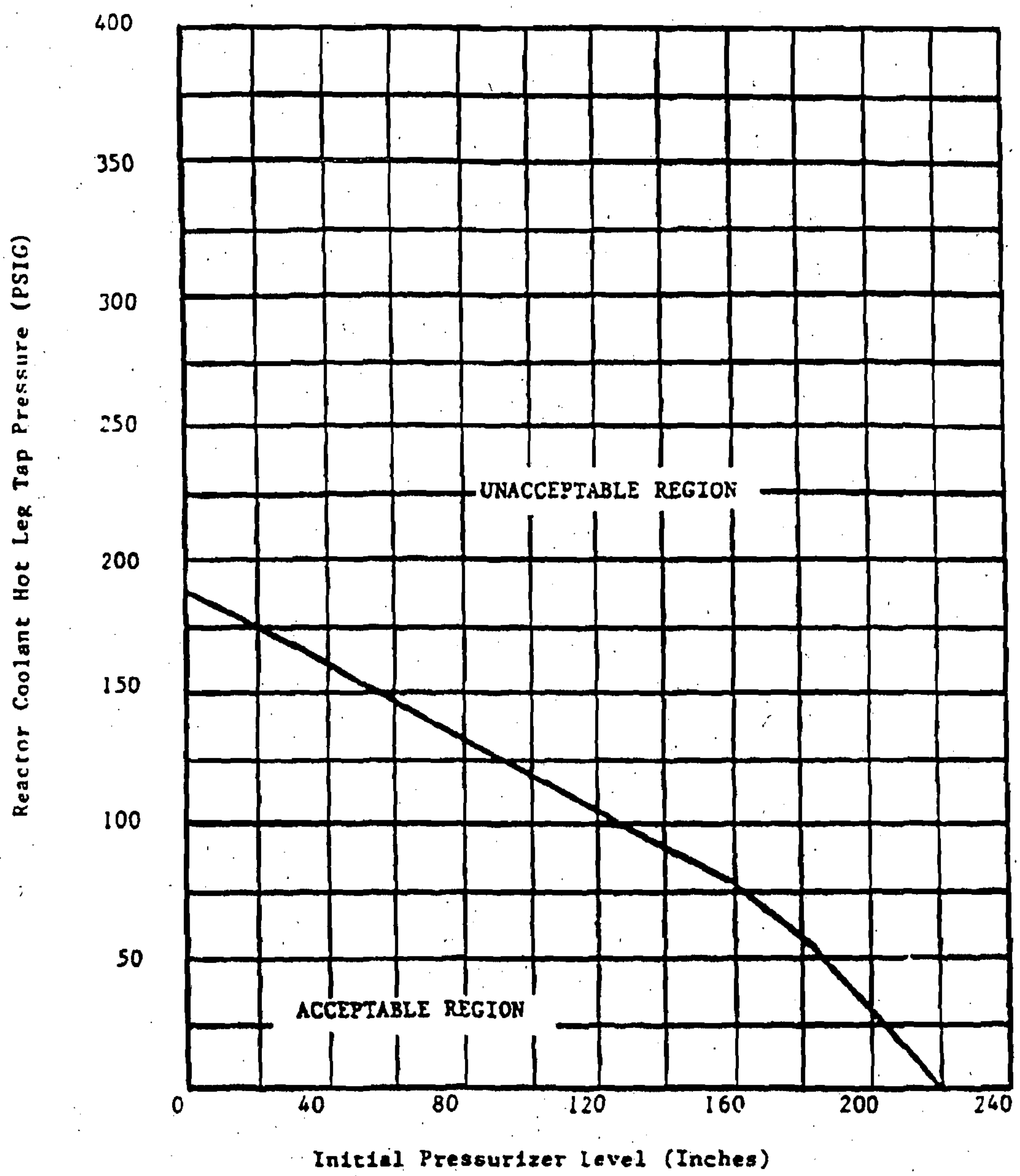

Figure 3.4.12-2
RCS Pressure Versus Pressurizer Level Limit
for Inoperable DHR System Relief Valve in MODE 5 and
MODE 6 when the reactor vessel head is on

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. <u>OR</u> Primary to secondary LEAKAGE not within limit.	C.1 Be in MODE 3. <u>AND</u> 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 limits.

AND

The Decay Heat Removal (DHR) System interlock function shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except the valves in the DHR flow path when in, or during the transition to or from, the DHR mode of operation and the DHR System interlock function.

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 and Required Action A.2 must have been verified to meet SR 3.4.14.2.a and be on the RCS 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
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time for Condition A not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours
C. Decay Heat Removal (DHR) System interlock function inoperable.	C.1	Isolate the affected line by use of two closed deactivated automatic valves.	4 hours
	OR		
	C.2	-----NOTE----- Only applicable if RCS pressure < 328 psig. ----- Restore the interlock function to OPERABLE status.	Prior to increasing RCS pressure ≥ 328 psig

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.14.1	Perform CHANNEL CHECK on the DHR System interlock channel common to Safety Features Actuation System (SFAS) instrumentation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.14.2	------------------------------NOTE------------------------------ Only required to be performed in MODES 1 and 2. -- Verify: a. Leakage from each RCS PIV is equivalent to ≤ 5.0 gpm at an RCS pressure of 2155 psig; and b. When current measured rate is > 1 gpm, the current measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and 5.0 gpm by 50%.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Prior to entering MODE 2 whenever the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months
SR 3.4.14.3	------------------------------NOTE------------------------------ Not required to be met when the DHR System interlock function is disabled in accordance with LCO 3.4.12. -- Verify DHR System interlock function prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ 328 psig.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.14.4	-------------------------------NOTE------------------------------ Not required to be met when the DHR System interlock function is disabled in accordance with LCO 3.4.12. -- Verify DHR System interlock function causes the valves to close automatically with a simulated or actual RCS pressure signal ≥ 328 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.4.14.5	Perform CHANNEL CALIBRATION on the DHR System interlock channels.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

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

a. One containment sump monitor; and

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

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Containment sump monitor inoperable.	A.1	---------------NOTE-------------- Not required until 12 hours after establishment of steady state operation. ------------------------------------	
		Perform SR 3.4.13.1.	Once per 24 hours
	AND		
	A.2	Restore containment sump monitor to OPERABLE status.	30 days
B. Required containment atmosphere radioactivity monitor inoperable.	B.1.1	Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR		

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.2	Perform CHANNEL FUNCTIONAL TEST of required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.3	Perform CHANNEL CALIBRATION of required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.4	Perform CHANNEL CALIBRATION of containment sump 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}) ≥ 530°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 μCi/gm.	---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. AND A.2 Restore DOSE EQUIVALENT I-131 to within limit.	 Once per 4 hours 48 hours
B. Required Action and associated Completion Time of Condition A not met. OR DOSE EQUIVALENT I-131 in unacceptable region of Figure 3.4.16-1. OR Gross specific activity of the reactor coolant not within limit.	B.1 Be in MODE 3 with T_{avg} < 530°F.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify reactor coolant gross specific activity ≤ 100/Ē 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 ≤ 1.0 μCi/gm.	In accordance with the Surveillance Frequency Control Program AND Between 2 and 6 hours after 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 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. --	
	Determine Ē.	In accordance with the Surveillance Frequency Control Program

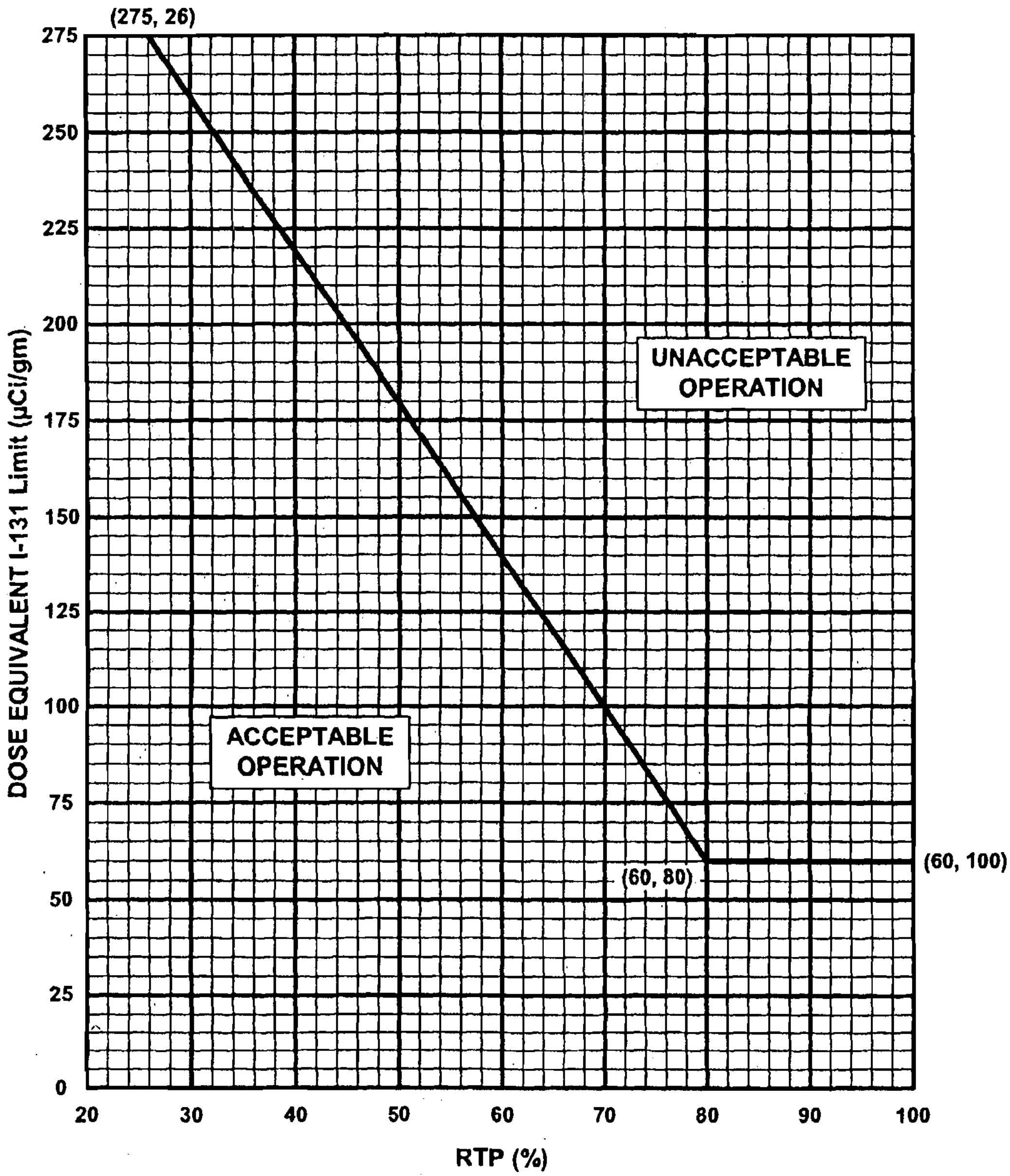

Figure 3.4.16-1 (page 1 of 1)
Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity Limit
Versus Percent of RATED THERMAL POWER With Reactor Coolant
Specific Activity > 1.0 µCi/gm DOSE EQUIVALENT I-131

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Steam Generator (SG) Tube Integrity

LCO 3.4.17 SG tube integrity shall be maintained.

AND

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

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

ACTIONS

--NOTE--

Separate Condition entry is allowed for each SG tube.

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.17.2	Verify that each inspected SG tube that satisfies the tube plugging criteria is plugged in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Core Flooding Tanks (CFTs)

LCO 3.5.1 Two CFTs shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CFT inoperable due to boron concentration not within limits.	A.1 Restore boron concentration to within limits.	72 hours
B. One CFT inoperable for reasons other than Condition A.	B.1 Restore CFT to OPERABLE status.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Reduce RCS pressure to ≤ 800 psig.	6 hours 18 hours
D. Two CFTs inoperable.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each CFT isolation valve is fully open.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	Verify borated water volume in each CFT is ≥ 12.6 feet and ≤ 13.3 feet.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify nitrogen cover pressure in each CFT is ≥ 580 psig and ≤ 620 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify boron concentration in each CFT is ≥ 2600 ppm and ≤ 3500 ppm.	In accordance with the Surveillance Frequency Control Program <u>AND</u> --------NOTE-------- Only required to be performed for affected CFT _______________ Once within 6 hours after each solution volume increase of ≥ 80 gallons that is not the result of addition from the borated water storage tank

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.5	Verify power is removed from each CFT isolation valve operator.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS - Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE.

-----NOTE-----
The borated water storage tank (BWST) outlet and containment emergency sump valves may be considered OPERABLE when the associated valve motors are de-energized, provided the valves are not otherwise inoperable.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One low pressure injection (LPI) subsystem inoperable.	A.1	Restore LPI subsystem to OPERABLE status.	7 days
B. One or more trains inoperable for reasons other than Condition A.	B.1	Restore train(s) to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 4.	12 hours
D. Less than 100% of the ECCS flow equivalent to a single OPERABLE train available.	D.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.2.3	Verify ECCS piping is full of water by venting the ECCS pump casings and discharge piping high points.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Prior to declaring ECCS OPERABLE after draining ECCS piping
SR 3.5.2.4	Verify each ECCS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.5	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.2.6	Verify the correct position of each mechanical stop for the following valves: a. DH-14A; and b. DH-14B.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and suction inlet trash racks and screens show no evidence of structural distress or abnormal corrosion.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.8	Verify the following: a. Each BWST outlet valve and containment emergency sump valve actuate to the correct position on a manual actuation of the containment emergency sump valve; and b. The actuation time of each BWST outlet valve and containment emergency sump valve is $\leq$ 75 seconds.	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 low pressure injection (LPI) subsystem shall be OPERABLE.

-----NOTE-----
The borated water storage tank (BWST) outlet and containment emergency sump valves may be considered OPERABLE when the associated valve motors are de-energized, provided the valves are not otherwise inoperable.

APPLICABILITY: MODE 4.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS LPI subsystem inoperable.	A.1 Initiate action to restore required ECCS LPI subsystem to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	For all equipment required to be OPERABLE, the following SRs are applicable: SR 3.5.2.1 SR 3.5.2.6 SR 3.5.2.2 SR 3.5.2.7 SR 3.5.2.3 SR 3.5.2.8 SR 3.5.2.4 SR 3.5.2.5	In accordance with applicable SRs

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Borated Water Storage Tank (BWST)

LCO 3.5.4 The BWST shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	-------------------------------NOTE------------------------------ Only required to be performed when ambient air temperature is < 35°F or > 90°F. -- Verify BWST borated water temperature is ≥ 35°F and ≤ 90°F.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.2	Verify BWST borated water volume is ≥ 500,100 gallons and ≤ 550,000 gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.3	Verify BWST boron concentration is ≥ 2600 ppm and ≤ 2800 ppm.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1 Containment

LCO 3.6.1 Containment shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks

LCO 3.6.2 Two containment air locks shall be OPERABLE.

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

ACTIONS

-----NOTES-----

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

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

ACTIONS (continued)

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

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

ACTIONS

-----NOTES-----

1. Penetration flow paths except for 48 inch containment purge and exhaust valve penetration flow paths may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for system(s) made inoperable by containment isolation valves.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. -----NOTE----- Only applicable to penetration flow paths with two or more containment isolation valves. ----- One or more penetration flow paths with one containment isolation valve inoperable for reasons other than Condition D or E.	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. (continued)	A.2	----------NOTES----------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. -------------------------------- Verify the affected penetration flow path is isolated.	Once per 31 days 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. ----------NOTE----------- Only applicable to penetration flow paths with two or more containment isolation valves. ----------------------------- One or more penetration flow paths with two or more containment isolation valves inoperable for reasons other than Condition D or E.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. ----------NOTE---------- Only applicable to penetration flow paths with only one containment isolation valve. --------------------------------- 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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more penetration flow paths with one or more containment purge or exhaust valves not within purge and exhaust valve leakage limits.	D.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.	24 hours
	AND		
	D.2	------------NOTES------------ 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. --------------------------------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
	AND		
	D.3	Perform SR 3.6.3.5 for the resilient seal containment purge and exhaust valves closed to comply with Required Action D.1.	Once per 92 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Secondary containment bypass leakage not within limit.	E.1 Restore secondary containment bypass leakage to within limit.	4 hours
F. Required Action and associated Completion Time not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Verify each 48 inch containment purge and exhaust valve is closed with control power removed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.2	-------------------------------NOTE------------------------------ Valves and blind flanges in high radiation areas may be verified by use of administrative means. --- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and is 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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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
SR 3.6.3.4	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	In accordance with the INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.5	Perform leakage rate testing for containment purge and exhaust valves with resilient seals.	Within 72 hours after each valve closure, if valve opened in MODE 1, 2, 3, or 4 AND Prior to entering MODE 4 from MODE 5 if valve opened in other than MODE 1, 2, 3, or 4 AND Prior to entering MODE 2 from MODE 3 each time the plant has been in any combination of MODE 3, 4, 5, or 6 for > 72 hours, if not performed in the previous 184 days
SR 3.6.3.6	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.7	Verify the combined leakage for all secondary containment bypass leakage paths is $\leq 0.03\ L_a$.	In accordance with the Containment Leakage Rate Testing Program

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be ≥ -14 inches water gauge and ≤ +25 inches water gauge.

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 ≤ 120°F.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature not within limit.	A.1 Restore containment average air temperature to within limit.	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 limit.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray and Air Cooling Systems

LCO 3.6.6 Two containment spray trains and two containment air cooling trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One containment spray train inoperable.	A.1	Restore containment spray train to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	84 hours
C. One required containment air cooling train inoperable.	C.1	Restore required containment air cooling train to OPERABLE status.	7 days
D. One containment spray train and one required containment air cooling train inoperable.	D.1	Restore containment spray train to OPERABLE status.	72 hours
	OR		
	D.2	Restore required containment air cooling train to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Two required containment air cooling trains inoperable.	E.1	Restore one required containment air cooling train to OPERABLE status.	72 hours
F. Required Action and associated Completion Time of Condition C, D, or E not met.	F.1	Be in MODE 3.	6 hours
	AND		
	F.2	Be in MODE 5.	36 hours
G. Two containment spray trains inoperable. OR Any combination of three or more required trains inoperable.	G.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.2	Operate each required containment air cooling train for $\geq$ 15 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.3	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.6.4	Verify each required containment air cooling train starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.5	Verify each required containment air cooling train cooling water flow rate is ≥ 1150 gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.6	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.7	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.8	Verify each spray nozzle is unobstructed.	Following maintenance that could result in nozzle blockage.

3.6 CONTAINMENT SYSTEMS

3.6.7 Trisodium Phosphate Dodecahydrate (TSP) Storage

LCO 3.6.7 The TSP storage baskets shall contain ≥ 290 ft^3 of TSP.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. TSP storage baskets contain < 290 ft^3 of TSP.	A.1	Restore TSP storage baskets to ≥ 290 ft^3 of TSP.	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.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify contained volume of TSP in the TSP storage baskets is within limit.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 The MSSVs shall be OPERABLE as specified in Table 3.7.1-1.

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 MSSVs inoperable.	A.1 Reduce power to less than the reduced power requirement of Equation 3.7.1-1.	4 hours
	<u>AND</u>	
	A.2 Reduce the High Flux trip setpoint in accordance with Equation 3.7.1-1.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more steam generators with less than two MSSVs OPERABLE. OR One or more steam generators with no MSSVs with a lift setting of 1050 psig ± 3% OPERABLE.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

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

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

NUMBER OF VALVES	LIFT SETTING (psig ± 3%)
2 MSSVs/steam generator	1050
7 MSSVs/steam generator	1100

$$\frac{WY}{Z} = SP; \quad RP = \frac{Y}{Z} \times 100\%$$

W = High Flux trip setpoint for four pump operation as specified in LCO 3.3.1, "Reactor Protection System (RPS) Instrumentation."

Y = Total OPERABLE MSSV relieving capacity per steam generator based on summation of individual OPERABLE MSSV relief capacities per steam generator lb/hour.

Z = Required relieving capacity per steam generator of 6,585,600 lb/hour.

SP = High Flux trip setpoint (not to exceed W).

RP = Reduced power requirement (not to exceed RTP).

Equation 3.7.1-1 (page 1 of 1)
Reduced Power and High Flux Trip Setpoint
Versus OPERABLE Main Steam Safety Valves

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 Two MSIVs shall be OPERABLE.

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

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.	8 hours
	<u>AND</u>		
	C.2	Verify MSIV is closed.	Once per 7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	D.2	Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify isolation time of each MSIV is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.2.2	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 Stop Valves (MFSVs), Main Feedwater Control Valves (MFCVs), and associated Startup Feedwater Control Valves (SFCVs)

LCO 3.7.3 Two MFSVs, MFCVs, and associated SFCVs shall be OPERABLE.

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

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each MFSV, MFCV, and SFCV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MFSVs inoperable.	A.1 Close or isolate MFSV.	72 hours
	AND	
	A.2 Verify MFSV is closed or isolated.	Once per 7 days
B. One or more MFCVs inoperable.	B.1 Close or isolate MFCV.	72 hours
	AND	
	B.2 Verify MFCV is closed or isolated.	Once per 7 days
C. One or more SFCVs inoperable.	C.1 Close or isolate SFCV.	72 hours
	AND	
	C.2 Verify SFCV is closed or isolated.	Once per 7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two valves in the same flow path inoperable.	D.1 Isolate affected flow path.	8 hours
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 MFSV is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.3.2	Verify the isolation time of each MFCV and SFCV is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.7.3.3	Verify each MFSV, MFCV, and SFCV 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 Turbine Stop Valves (TSVs)

LCO 3.7.4 Four TSVs shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more TSVs inoperable.	A.1 Close inoperable TSV. <u>AND</u> A.2 Verify inoperable TSV is closed	8 hours Once per 7 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 3.7.4.1	Verify isolation time of each TSV is within limits.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.4.2	Verify each TSV actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.5 Emergency Feedwater (EFW)

LCO 3.7.5 Three EFW trains shall be OPERABLE, consisting of:

a. Two Auxiliary Feedwater (AFW) trains; and

b. The Motor Driven Feedwater Pump (MDFP) train.

-------------------------------------NOTE-------------------------------------
Only the MDFP train is required to be OPERABLE in MODE 4.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One AFW train inoperable due to one inoperable steam supply. OR ----------NOTE---------- Only applicable if MODE 2 has not been entered following refueling. --- One AFW train inoperable in MODE 3 following refueling.	A.1 Restore AFW train to OPERABLE status.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One EFW train inoperable for reasons other than Condition A in MODE 1, 2, or 3.	B.1	Restore EFW train to OPERABLE status.	72 hours
C. One AFW train inoperable due to one inoperable steam supply.	C.1	Restore the steam supply to the AFW train to OPERABLE status.	48 hours
AND	OR		
MDFP train inoperable.	C.2	Restore the MDFP train to OPERABLE status.	48 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Be in MODE 3.	6 hours
OR	AND		
Two EFW trains inoperable for reasons other than Condition C in MODE 1, 2, or 3.	D.2	Be in MODE 4.	12 hours
E. Three EFW trains inoperable in MODE 1, 2, or 3.	E.1	-----NOTE----- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one EFW train is restored to OPERABLE status. ----------	
		Initiate action to restore one EFW train to OPERABLE status.	Immediately

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	-------------------------------NOTE------------------------------ In MODE 1 ≤ 40% RTP and MODES 2, 3, and 4, the MDFP train valves are allowed to be in the non-correct position, provided the valves are capable of being locally realigned to the correct position. --- Verify each EFW manual, power operated, and automatic valve in each water flow path and in both steam supply flow paths to the AFW pumps, 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 until 24 hours after reaching 800 psig in the steam generators. --- 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 Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.5.3	-------------------------------NOTE------------------------------ Not required to be performed until 73 hours after MDFP train is aligned to the AFW System. -- Operate the MDFP train.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.4	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after reaching 800 psig in the steam generators. -- 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 3.7.5.5	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after reaching 800 psig in the steam generators. -- 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 3.7.5.6	Verify proper alignment of the required AFW flow paths by verifying flow from the condensate storage tanks to each steam generator.	Prior to entering MODE 2 following refueling or whenever plant has been in MODE 5, MODE 6, or defueled for a cumulative period of > 30 days
SR 3.7.5.7	Verify proper alignment of the required MDFP flow paths by verifying flow from the condensate storage tanks to each steam generator.	Prior to entering MODE 3 following refueling or whenever plant has been in MODE 5, MODE 6, or defueled for a cumulative period of > 30 days
SR 3.7.5.8	Perform CHANNEL CHECK on each AFW train Steam Generator Level Control System.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.9	Perform CHANNEL FUNCTIONAL TEST on each AFW train Steam Generator Level Control System.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.10	Perform CHANNEL CALIBRATION on each AFW train Steam Generator Level Control System.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tanks (CSTs)

LCO 3.7.6 The CSTs shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The CSTs inoperable.	A.1 Verify by administrative means OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND	
	A.2 Restore CSTs 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 usable volume in the CSTs is $\geq$ 270,300 gal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW loops shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.8 Service Water System (SWS)

LCO 3.7.8 Two SWS loops shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	-------------------------------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 required 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. AND 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 ≥ 562 ft International Great Lakes Datum.	In accordance with the Surveillance Frequency Control Program
SR 3.7.9.2	Verify average water temperature of UHS is ≤ 90°F.	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.

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

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

2. Only the CRE boundary is required to be OPERABLE during movement of irradiated fuel assemblies.

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

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours
D. CRE boundary inoperable during movement of irradiated fuel assemblies.	D.1 Suspend movement of irradiated fuel assemblies.	Immediately
E. Two CREVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREVS train for ≥ 15 minutes.	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 Control Room Normal Ventilation System isolates on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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
SR 3.7.10.5	Verify the system makeup flow rate is $\geq$ 270 cfm and $\leq$ 330 cfm when supplying the control room with outside air.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Temperature Control System (CREATCS)

LCO 3.7.11 Two CREATCS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREATCS train inoperable.	A.1 Restore CREATCS train to OPERABLE status.	30 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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify each CREATCS train has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.12 Station Emergency Ventilation System (EVS)

LCO 3.7.12 Two Station EVS trains shall be OPERABLE.

---NOTE---
The shield building area negative pressure boundary may be opened intermittently under administrative control.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One Station EVS train inoperable.	A.1	Restore Station EVS train to OPERABLE status.	7 days
B. Two Station EVS trains inoperable due to inoperable shield building area negative pressure boundary.	B.1	Restore shield building area negative pressure boundary to OPERABLE status.	24 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 3.7.12.1	Operate each Station EVS train for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.12.2	Perform required Station EVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.12.3	Verify each Station EVS train actuates on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.12.4	Verify one Station EVS train can attain a negative pressure ≥ 0.25 inches water gauge in the annulus ≤ 4 seconds after the flow rate is ≥ 7200 cfm and ≤ 8800 cfm.	In accordance with the Surveillance Frequency Control Program
SR 3.7.12.5	Verify each Station EVS filter cooling bypass damper can be opened.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.13 Spent Fuel Pool Area Emergency Ventilation System (EVS)

LCO 3.7.13 Two Spent Fuel Pool Area EVS trains shall be OPERABLE.

-----NOTE-----
The spent fuel pool area negative pressure boundary may be opened under administrative control.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Spent Fuel Pool Area EVS train inoperable.	A.1 Restore Spent Fuel Pool Area EVS train to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Place OPERABLE Spent Fuel Pool Area EVS train in operation.	Immediately
	<u>OR</u>	
	B.2 Suspend movement of irradiated fuel assemblies in the spent fuel pool building.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Two Spent Fuel Pool Area EVS trains inoperable.	C.1	Suspend movement of irradiated fuel assemblies in the spent fuel pool building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.13.1	Operate each Spent Fuel Pool Area EVS train for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.13.2	Perform required Spent Fuel Pool Area EVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.13.3	Verify each Spent Fuel Pool Area EVS train actuates on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.13.4	Verify one Spent Fuel Pool Area EVS train can maintain a negative pressure ≥ 0.125 inches water gauge relative to outside atmosphere.	In accordance with the Surveillance Frequency Control Program
SR 3.7.13.5	Verify each Spent Fuel Pool Area EVS filter cooling bypass damper can be opened.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.14 Spent Fuel Pool Water Level

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.15 Spent Fuel Pool Boron Concentration

LCO 3.7.15 The spent fuel pool boron concentration shall be ≥ 630 ppm.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.16 Spent Fuel Pool Storage

LCO 3.7.16 Fuel assemblies stored in the spent fuel pool shall be placed in the spent fuel pool storage racks in accordance with the criteria shown in Figure 3.7.16-1.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Requirements of the LCO not met.	A.1	------------NOTE------------ LCO 3.0.3 is not applicable. ---------------------------------- Initiate action to move the noncomplying fuel assembly to an allowable location.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.16.1	Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure 3.7.16-1.	Prior to storing the fuel assembly in the spent fuel pool

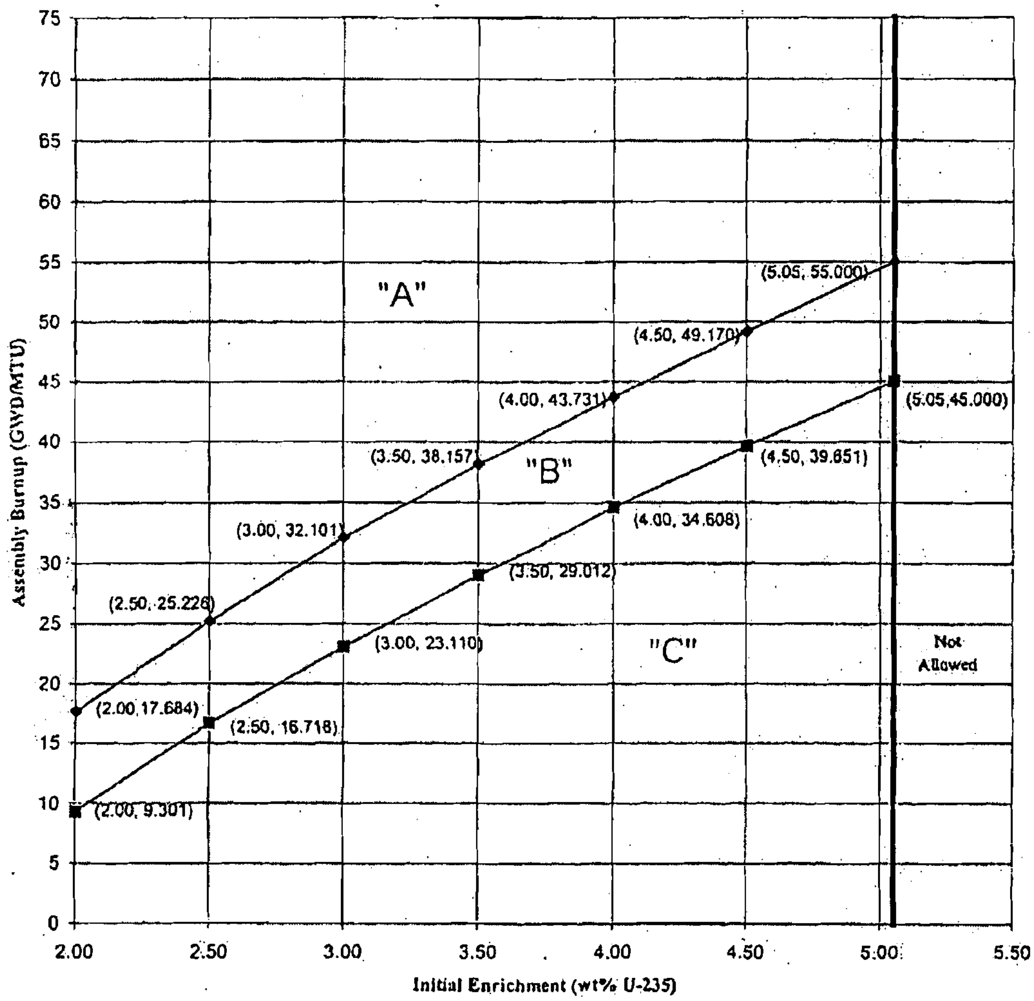

Figure 3.7.16-1 (page 1 of 1)
Burnup versus Enrichment Curve for
Spent Fuel Pool Storage Racks

NOTE: Fuel assemblies with initial enrichments less than 2.0 wt% U-235 will conservatively be required to meet the burnup requirements of 2.0 wt% U-235 assemblies. The approved loading patterns applicable to Category "A," "B," and "C" assemblies are specified in the Bases.

3.7 PLANT SYSTEMS

3.7.17 Secondary Specific Activity

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.18 Steam Generator Level

LCO 3.7.18 Water Level of each steam generator shall be:

a. Less than or equal to the maximum water level shown in Figure 3.7.18-1 when in MODE 1 or 2;

b. ≤ 96% Operate Range with LCO 3.3.11, "Steam and Feedwater Rupture Control System (SFRCS) Instrumentation," Function 1 (Main Steam Line Pressure - Low) not bypassed when in MODE 3;

c. ≤ 74% Operate Range with LCO 3.3.11, Function 1 bypassed and both main feedwater (MFW) pumps not capable of supplying feedwater to the steam generators when in MODE 3; and

d. ≤ 50 inches Startup Range with LCO 3.3.11, Function 1 bypassed and one MFW pump capable of supplying feedwater to the steam generators when in MODE 3.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

Enter applicable Conditions and Required Actions of LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," when high steam generator water level results in exceeding the SDM limits.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Water level in one or more steam generators not within limits.	A.1	Restore steam generator level to within limit.	15 minutes
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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.18.1	Verify steam generator water level to be within limits.	In accordance with the Surveillance Frequency Control Program

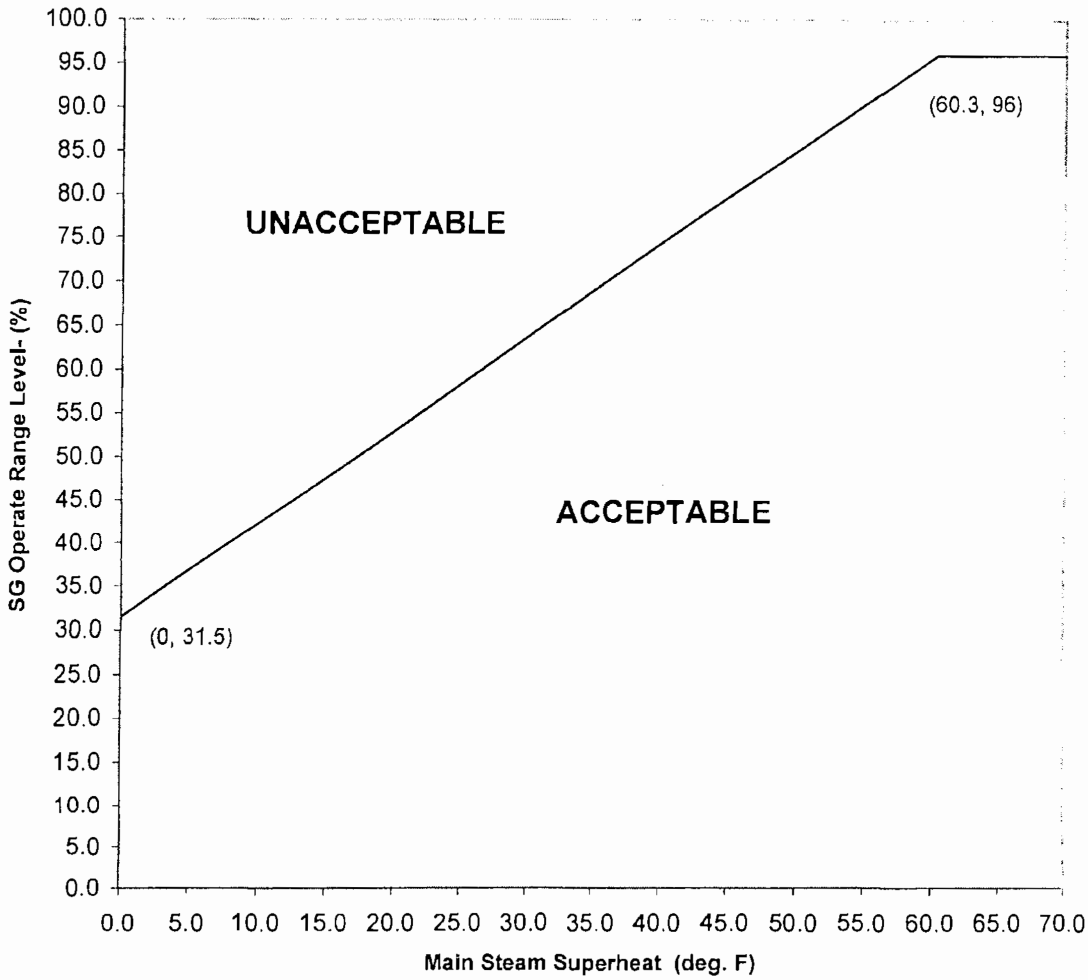

Figure 3.7.18-1 (page 1 of 1)
Maximum Allowable Steam Generator Level

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

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

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

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

c. Two load sequencers for Train 1 and two load sequencers for Train 2.

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

ACTIONS

-----NOTE-----

LCO 3.0.4.b is not applicable to EDGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for 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	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	Restore offsite circuit to OPERABLE status.	72 hours
B. One EDG inoperable.	B.1	Perform SR 3.8.1.1 for OPERABLE offsite circuit(s).	1 hour AND Once per 8 hours thereafter
	AND		
	B.2	Declare required feature(s) supported by the inoperable EDG inoperable when its redundant required 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 EDG is not inoperable due to common cause failure.	24 hours
	OR		
	B.3.2	Perform SR 3.8.1.2 for OPERABLE EDG.	24 hours
	AND		
	B.4	Restore EDG to OPERABLE status.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	AND	
	C.2 Restore one offsite circuit to OPERABLE status.	24 hours
D. One offsite circuit inoperable. AND One EDG 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 offsite circuit to OPERABLE status.	12 hours
	OR	
	D.2 Restore EDG to OPERABLE status.	12 hours
E. Two EDGs inoperable.	E.1 Restore one EDG to OPERABLE status.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Required Action and Associated Completion Time of Condition A, B, C, D, or E not met.	F.1	Be in MODE 3.	6 hours
	AND		
	F.2	Be in MODE 5.	36 hours
G. ----------NOTE---------- Separate Condition entry is allowed for each train. -------------------------- One or more trains with one load sequencer inoperable.	G.1	Remove inoperable load sequencer.	1 hour
H. ----------NOTE---------- Separate Condition entry is allowed for each train. -------------------------- Required Action and associated Completion Time of Condition G not met. OR One or more trains with two load sequencers inoperable.	H.1	Declare associated EDG inoperable.	Immediately
I. Three or more AC sources inoperable.	I.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 offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	-----------------------------NOTES----------------------------- 1. All EDG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 2. A modified EDG start involving idling and/or gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.8 must be met. -- Verify each EDG starts from standby conditions and achieves steady state voltage ≥ 4088 V and ≤ 4400 V, and frequency ≥ 59.5 Hz and ≤ 60.5 Hz.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	-----------------------------NOTES----------------------------- 1. EDG 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 EDG at a time. 4. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.8. -- Verify each EDG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 2340 kW and ≤ 2600 kW.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4	Verify each day tank contains ≥ 4000 gal of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.5	Check for and remove accumulated water from each day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.6	Verify interval between each sequenced load block is within ± 10% of design interval for each emergency load sequencer and each emergency time delay relay.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	Verify the fuel oil transfer system operates to transfer fuel oil from fuel oil storage tank to the day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.8	------------------------------NOTE------------------------------ All EDG starts may be preceded by an engine prelube period. --- Verify each EDG starts from standby condition and achieves: a. In ≤ 10 seconds, voltage ≥ 4070 V and frequency ≥ 59.5 Hz; and b. Steady state voltage ≥ 4088 V and ≤ 4400 V, and frequency ≥ 59.5 Hz and ≤ 60.5 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.9	------------------------------NOTES------------------------------ 1. SR 3.8.1.9.a is only required to be met when the unit auxiliary source is supplying the electrical power distribution subsystem. 2. The automatic transfer portion of SR 3.8.1.9.a and all of SR 3.8.1.9.b shall not normally be performed in MODE 1 or 2. However, they 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 automatic and manual transfer of AC power sources from: a. The unit auxiliary source to the pre-selected offsite circuit; and b. The normal offsite circuit to the alternate offsite circuit.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	-----------------------------NOTES----------------------------- 1. 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 EDG synchronized with offsite power, it shall be performed within the power factor limit. 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 EDG rejects a load greater than or equal to its associated single largest post-accident load, and following load rejection, the frequency is $\leq$ 66.75 Hz.	 In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	-----------------------------NOTES----------------------------- 1. All EDG 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: a. De-energization of essential buses; b. Load shedding from essential buses; and c. EDG auto-starts from standby condition and: 1. Energizes permanently connected loads in $\leq$ 10 seconds; 2. Energizes auto-connected shutdown loads through individual time delay relays; 3. Maintains steady-state voltage $\geq$ 4088 V and $\leq$ 4400 V; 4. Maintains steady-state frequency $\geq$ 59.5 Hz and $\leq$ 60.5 Hz; and 5. Supplies permanently connected and auto-connected shutdown loads for $\geq$ 5 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------------------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 EDG's noncritical automatic trips are bypassed on actual or simulated loss of voltage signal on the essential bus or an actual or simulated Safety Features Actuation System (SFAS) actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.13	------------------------------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 EDG synchronized with offsite power, it shall be performed within the power factor limit. 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 EDG operates for ≥ 8 hours: a. For ≥ 2 hours loaded ≥ 2730 kW and ≤ 2860 kW; and b. For the remaining hours of the test loaded ≥ 2340 kW and ≤ 2600 kW.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	-----------------------------NOTES---------------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the EDG after the EDG has operated ≥ 1 hour loaded ≥ 2340 kW and ≤ 2600 kW. Momentary transients outside of load range do not invalidate this test. 2. All EDG starts may be preceded by an engine prelube period. ---	
	Verify each EDG starts and achieves: a. In ≤ 10 seconds, voltage ≥ 4070 V and frequency ≥ 59.5 Hz; and b. Steady state voltage ≥ 4088 V and ≤ 4400 V, and frequency ≥ 59.5 Hz and ≤ 60.5 Hz.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	-----------------------------NOTES----------------------------- 1. All EDG 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 SFAS actuation signal: a. De-energization of essential buses; b. Load shedding from essential buses; c. EDG auto-starts from standby condition and: 1. Energizes permanently connected loads in $\leq$ 10 seconds; 2. Energizes auto-connected emergency loads through load sequencer and individual time delay relays; 3. Achieves steady-state voltage $\geq$ 4088 V and $\leq$ 4400 V; 4. Achieves steady-state frequency $\geq$ 59.5 Hz and $\leq$ 60.5 Hz; and 5. Supplies permanently connected and auto-connected emergency loads for $\geq$ 5 minutes.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

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

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

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

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

ACTIONS

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

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.1 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	A.2.3 Initiate action to restore required offsite circuit to OPERABLE status.	Immediately
B. One required EDG inoperable.	B.1 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	B.2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	B.3 Initiate action to restore required EDG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	-----NOTE----- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.10, SR 3.8.1.11, SR 3.8.1.12, SR 3.8.1.13, and SR 3.8.1.14. -----	
	For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources - Operating," except SR 3.8.1.6, SR 3.8.1.9, and SR 3.8.1.15, are applicable.	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 emergency diesel generator (EDG).

APPLICABILITY: When associated EDG is required to be OPERABLE.

ACTIONS

-NOTE-

Separate Condition entry is allowed for each EDG.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more EDGs with fuel level < 32,000 gal and > 26,800 gal in storage tank.	A.1	Restore fuel oil level to within limits.	48 hours
B. One or more EDGs with lube oil inventory < 260 gal and > 236 gal.	B.1	Restore lube oil inventory to within limits.	48 hours
C. One or more EDGs 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 EDGs with new fuel oil properties not within limits.	D.1	Restore stored fuel oil properties to within limits.	30 days
E. One or more EDGs with required starting air receiver pressure < 210 psig and ≥ 139 psig.	E.1	Restore starting air receiver pressure to ≥ 210 psig.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> One or more EDGs 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 EDG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains ≥ 32,000 gal of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify lube oil inventory for each EDG is ≥ 260 gal.	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 each required EDG air start receiver pressure is ≥ 210 psig.	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 1 and Train 2 DC electrical power sources shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required 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 ≤ 2 amps.	Once per 12 hours
	<u>AND</u>	
	A.3 Restore required battery charger(s) to OPERABLE status.	72 hours
B. One DC electrical power source inoperable for reasons other than Condition A.	B.1 Restore DC electrical power source to OPERABLE status.	2 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 3.8.4.1	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 required battery charger supplies ≥ 475 amps at greater than or equal to the minimum established float voltage for ≥ 8 hours. <u>OR</u> Verify each required battery charger can recharge the battery to the fully charged state within 12 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 actual or simulated 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 Train 1 or Train 2 DC electrical power source shall be OPERABLE to support one train of the DC Electrical Power Distribution System required by LCO 3.8.10, "Distribution System - Shutdown."

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

ACTIONS

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

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.5.1	-----NOTE----- The following SR is not required to be performed: SR 3.8.4.3. ---------- For the DC source 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 the Train 1 and Train 2 batteries shall be within limits.

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

ACTIONS

--NOTE--

Separate Condition entry is allowed for each battery.

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. ----------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. --		
One or more batteries with one or more cells electrolyte level less than minimum established design limits.	C.1	Restore electrolyte level to above top of plates.	8 hours
	AND		
	C.2	Verify no evidence of leakage.	12 hours
	AND		
	C.3	Restore electrolyte level to greater than or equal to minimum established design limits.	31 days
D. One or more batteries with pilot cell electrolyte temperature less than minimum established design limits.	D.1	Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. Batteries in redundant trains with battery parameters not within limits.	E.1	Restore battery parameters for batteries in one train to within limits.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. OR One or more batteries with one or more battery cells float voltage ≤ 2.07 V and float current > 2 amps. OR SR 3.8.6.6 not met.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	-------------------------------NOTE------------------------------ Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. --- Verify each battery float current is ≤ 2 amps.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.2	Verify each battery pilot cell voltage is > 2.07 V.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.5	Verify each battery connected cell voltage is > 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> 12 months when battery shows degradation, or has reached 85% of the expected life with capacity < 100% of manufacturer's rating <u>AND</u> 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 The Train 1 and Train 2 inverters shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One inverter inoperable.	A.1	------------NOTE------------ Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any 120 VAC vital bus de-energized. ------------------------------ Restore inverter to OPERABLE status.	24 hours
B. Two inverters in one train inoperable.	B.1	Restore one inverter to OPERABLE status	8 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify, for each inverter, correct inverter voltage, frequency, and alignment to the associated 120 VAC vital bus.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 One inverter shall be OPERABLE to support the 120 VAC vital electrical distribution subsystem required by LCO 3.8.10, "Distribution Systems - Shutdown."

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

ACTIONS

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

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

SURVEILLANCE REQUIREMENTS

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

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 Train 1 and Train 2 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 sources made inoperable by inoperable power distribution subsystems. ------	
	A.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours
B. One or more AC vital buses inoperable.	B.1 Restore AC vital bus(es) to OPERABLE status.	8 hours
C. One DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem to OPERABLE status.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours
E. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments 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 portions 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.

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 movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<u>AND</u>	
	A.2.3 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status.	Immediately
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Declare associated required decay 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) and the refueling canal shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Boron concentration not within limit.	A.1 Suspend positive reactivity additions.	Immediately
	AND	
	A.2 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 positive reactivity additions, except the introduction of coolant into the RCS.	Immediately
	<u>AND</u>		
	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
	<u>AND</u>		
	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 Decay Time

LCO 3.9.3 The reactor shall be subcritical for ≥ 72 hours.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor not subcritical for ≥ 72 hours.	A.1 Suspend movement of irradiated fuel assemblies within the reactor pressure vessel.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify reactor subcritical for ≥ 72 hours.	Prior to movement of irradiated fuel assemblies within the reactor pressure vessel

3.9 REFUELING OPERATIONS

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

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

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

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

ACTIONS

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify one DHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 2800 gpm.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

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

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

-----NOTES-----

1. All DHR 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, "Boron Concentration;" and

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

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

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Less than required number of DHR loops OPERABLE.	A.1	Initiate action to restore DHR loop to OPERABLE status.	Immediately
	<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 DHR loop OPERABLE or 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 DHR loop to OPERABLE status and to operation.	Immediately
	AND		
	B.3	Close equipment hatch and secure with four bolts.	4 hours
	AND		
	B.4	Close one door in each air lock.	4 hours
	AND		
	B.5	Verify each penetration providing direct access from the containment atmosphere to the outside atmosphere is either closed with a manual or automatic isolation valve, blind flange, or equivalent, or is capable of being closed by a Containment Purge and Exhaust Isolation System.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one DHR loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.2	-------------------------------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 DHR pump that is not in operation.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.6 Refueling Canal Water Level

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

APPLICABILITY: During movement of irradiated fuel assemblies within containment.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

4.0 DESIGN FEATURES

4.1 Site Location

The Davis-Besse Nuclear Power Station is located on Lake Erie in Ottawa County, Ohio, approximately six miles northeast from Oak Harbor, Ohio and 21 miles east from Toledo, Ohio. The exclusion area boundary has a minimum radius of 2400 feet from the center of the plant.

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain 177 fuel assemblies. Each assembly shall consist of a matrix of Zircalloy M5 or ZIRLO clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO2) 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 Rods

The reactor core shall contain 53 CONTROL RODS and 8 APSRs. The material shall be silver indium cadmium for the CONTROL RODS and inconel for the APSRs, as approved by the NRC.

4.3 Fuel Storage

4.3.1 Criticality

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

a. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.1 of the UFSAR;

b. A nominal 9.22 inch center to center distance between fuel assemblies; and

c. Fuel assemblies stored in the spent fuel storage racks in accordance with LCO 3.7.16.

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

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 5.0 weight percent;

b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.1 of the UFSAR;

c. $k_{eff} \leq 0.98$ when immersed in a hydrogenous mist, 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.

4.3.2 <u>Drainage</u>

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below 9 feet above the top of the spent fuel storage racks.

4.3.3 <u>Capacity</u>

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1624 fuel assemblies.

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

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

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

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

5.0 ADMINISTRATIVE CONTROLS

5.2 Organization

5.2.1 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 UFSAR.

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

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

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

5.2.2 Unit Staff

The unit staff organization shall include the following:

a. A non-licensed operator shall be assigned if the reactor contains fuel and an additional non-licensed operator shall be assigned if the 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 Specifications 5.2.2.a and 5.2.2.f for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements;

5.2 Organization

5.2.2 Unit Staff (continued)

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

d. Deleted;

e. The operations manager or at least one operations middle manager shall hold a Senior Operator license; and

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

5.0 ADMINISTRATIVE CONTROLS

5.3 Unit Staff Qualifications

5.3.1 Each member of the unit staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions, except for the radiation protection manager, the operations manager, and licensed operators. The radiation protection manager shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975. The operations manager shall be qualified as required by Specification 5.2.2.e. The licensed operators shall comply only with the requirements of 10 CFR 55.

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

5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

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

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

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

c. Quality assurance for effluent and environmental monitoring; 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; and

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

5.5 Programs and Manuals

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include makeup, letdown, seal injection, seal return, low pressure injection, containment spray, high pressure injection, waste gas, primary sampling, and reactor coolant drain systems. The program shall include the following:

a. Preventive maintenance and periodic visual inspection requirements; and

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

The provisions of SR 3.0.2 are applicable.

5.5.3 Radioactive Effluent Controls Program

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

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

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

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

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

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

5.5 Programs and Manuals

5.5.3 Radioactive Effluent Controls Program (continued)

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

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

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

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

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

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

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

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

5.5.4 Reactor Vessel Internals Vent Valves Program

A program shall be established to implement the testing of the reactor vessel internals vent valves every 24 months as follows:

a. Verify by visual inspection that the valve body and valve disc exhibit no abnormal degradation;

b. Verify the valve is not stuck in an open position; and

c. Verify by manual actuation that the valve is fully open when a force of ≤ 400 lbs is applied vertically upward.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Reactor Vessel Internals Vent Valves Program test Frequencies.

5.5 Programs and Manuals

5.5.5 Allowable Operating Transient Cycles Program

This program provides controls to track the UFSAR, Section 5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel. Inservice inspection of each reactor coolant pump flywheel shall be performed every 10 years. The inservice inspection shall be either an ultrasonic examination of the volume from the inner bore of the flywheel to the circle of one-half the outer radius, or a surface examination of exposed surfaces of the disassembled flywheel. The recommendations delineated in Regulatory Positions C.4.b(3), (4), and (5) of Regulatory Guide 1.14, Revision 1, August 1975, shall apply.

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

5.5.7 Deleted

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Program

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

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

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

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

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

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Program (continued)

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

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

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

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

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Program (continued)

2. After the first refueling outage following SG installation, inspect each SG at least every 72 effective full power months or at least every third refueling outage (whichever results in more frequent inspections). In addition, the minimum number of tubes inspected at each scheduled inspection shall be the number of tubes in all SGs divided by the number of SG inspection outages scheduled in each inspection period as defined in a, b, c and d below. If a degradation assessment indicates the potential for a type of degradation to occur at a location not previously inspected with a technique capable of detecting this type of degradation at this location and that may satisfy the applicable tube plugging criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated. The fraction of locations to be inspected for this potential type of degradation at this location at the end of the inspection period shall be no less than the ratio of the number of times the SG is scheduled to be inspected in the inspection period after the determination that a new form of degradation could potentially be occurring at this location divided by the total number of times the SG is scheduled to be inspected in the inspection period. Each inspection period defined below may be extended up to 3 effective full power months to include a SG inspection outage in an inspection period and the subsequent inspection period begins at the conclusion of the included SG inspection outage.

   a) After the first refueling outage following SG installation, inspect 100% of the tubes during the next 144 effective full power months. This constitutes the first inspection period;

   b) During the next 120 effective full power months, inspect 100% of the tubes. This constitutes the second inspection period;

   c) During the next 96 effective full power months, inspect 100% of the tubes. This constitutes the third inspection period; and

   d) During the remaining life of the SGs, inspect 100% of the tubes every 72 effective full power months. This constitutes the fourth and subsequent inspection periods.

3. If crack indications are found in any SG tube, then the next inspection for each affected and potentially affected SG for the

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Program (continued)

degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever results in more frequent inspections). 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.

5.5.9 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.

5.5.10 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of safety related filter ventilation systems in accordance with Regulatory Guide 1.52, Revision 2, ANSI/ASME N510-1980, and ASTM D 3803-1989.

a. Demonstrate for each of the safety related systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI/ASME N510-1980 at the system flowrate specified below.

Safety Related Ventilation System	Flowrate (cfm)
Station Emergency Ventilation System (EVS)	≥ 7200 and ≤ 8800
Control Room Emergency Ventilation System (CREVS)	≥ 2970 and ≤ 3630

5.5 Programs and Manuals

5.5.10 Ventilation Filter Testing Program (continued)

b. Demonstrate for each of the safety related systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI/ASME N510-1980 at the system flowrate specified below.

Safety Related Ventilation System	Flowrate (cfm)
Station EVS	≥ 7200 and ≤ 8800
CREVS	≥ 2970 and ≤ 3630

c. Demonstrate for each of the safety related systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity (RH) specified below.

Safety Related Ventilation System	Penetration (%)	RH (%)
Station EVS	≤ 2.5	95
CREVS	≤ 2.5	70

d. Demonstrate for each of the safety related systems that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than the value specified below when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI/ASME N510-1980 at the system flowrate specified below.

Safety Related Ventilation System	Delta P (inches wg)	Flowrate (cfm)
Station EVS	< 6	≥ 7200 and ≤ 8800
CREVS	< 4.4	≥ 2970 and ≤ 3630

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

5.5.11 Explosive Gas and Storage Tank Radioactivity Monitoring Program

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

5.5 Programs and Manuals

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

The program shall include:

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

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

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

5.5.12 Diesel Fuel Oil Testing Program

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

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

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

   2. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil; and

   3. A clear and bright appearance with proper color, or 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 $\leq$ 10 mg/l when tested every 31 days.

5.5 Programs and Manuals

5.5.12 Diesel Fuel Oil Testing Program (continued)

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

5.5.13 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 UFSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

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

d. Proposed changes that meet the criteria of Specification 5.5.13.b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.14 Safety Function Determination Program (SFDP)

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

a. The SFDP shall contain the following:

   1. Provisions for cross 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;

5.5 Programs and Manuals

5.5.14 Safety Function Determination Program (continued)

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 described in Specifications 5.5.14.b.1 and 5.5.14.b.2 above is also inoperable.

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

5.5.15 Containment Leakage Rate Testing Program

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Nuclear Energy Institute (NEI) topical report NEI 94-01, Revision 3-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated July 2012, and the conditions and limitations specified in NEI 94-01, Revision 2-A, dated October 2008, as modified by the following exceptions:

1. A reduced duration Type A test may be performed using the criteria and Total Time method specified in Bechtel Topical Report BN-TOP-1, Revision 1.

5.5 Programs and Manuals

5.5.15 Containment Leakage Rate Testing Program (continued)

2. The fuel transfer tube blind flanges (containment penetrations 23 and 24) will not be eligible for extended test frequencies. Their Type B test frequency will remain at 30 months. However, as-found testing will not be required.

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is 38 psig.

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be 0.50% of containment air weight per day.

d. Leakage rate acceptance criteria are:

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

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is $\leq 0.015\ L_a$ when tested at $\geq P_a$.

b) For each door, leakage rate is $\leq 0.01\ L_a$ when the volume between the door seals is pressurized to ≥ 10 psig.

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

5.5.16 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, including 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 that the remaining cells are > 2.07 V when a pilot cell or cells have been found to be < 2.13 V.

5.5.17 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

5.5 Programs and Manuals

5.5.17 Control Room Envelope Habitability Program (continued)

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 whole body or its equivalent to any part of the body for the duration of the accident. The program shall include the following elements:

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

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

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Section 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. Measurements, 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 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 month assessment of the CRE boundary;

e. The quantitative limits on unfiltered air leakage 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 Specification 5.5.17.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; and

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 Specifications 5.5.17.c and 5.5.17.d, respectively.

5.5.18 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications

5.5 Programs and Manuals

5.5.18 Surveillance Frequency Control Program (continued)

are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

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

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, “Risk-Informed 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

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.

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

5.6.2 Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering the operation of the unit in the previous year shall be submitted 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:

1. SL 2.1.1.1, "Reactor Core Safety Limits";

2. LCO 3.1.1, "SHUTDOWN MARGIN (SDM)";

3. LCO 3.1.3, "Moderator Temperature Coefficient (MTC)";

4. LCO 3.1.7, "Position Indicator Channels," (SR 3.1.7.1 limits);

5.6 Reporting Requirements

5.6.3 CORE OPERATING LIMITS REPORT (COLR) (continued)

5. LCO 3.1.8, "PHYSICS TEST Exceptions - MODE 1";

6. LCO 3.1.9, "PHYSICS TEST Exceptions - MODE 2";

7. LCO 3.2.1, "Regulating Rod Insertion Limits";

8. LCO 3.2.2, "AXIAL POWER SHAPING ROD (APSR) Insertion Limits";

9. LCO 3.2.3, "AXIAL POWER IMBALANCE Operating Limits";

10. LCO 3.2.4, "QUADRANT POWER TILT (QPT)";

11. LCO 3.2.5, "Power Peaking Factors";

12. LCO 3.3.1,"Reactor Protection System (RPS) Instrumentation," Function 8 (Flux - ΔFlux – Flow) Allowable Value; and

13. 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, as described in BAW-10179P-A, "Safety Criteria and Methodology for Acceptable Cycle Reload Analyses," or any other new NRC approved analytical methods used to determine core operating limits that are not yet referenced in the applicable approved revision of BAW-10179P-A. The applicable approved revision number for BAW-10179P-A at the time of the reload analyses are performed shall be identified in the CORE OPERATING LIMITS REPORT (COLR). The COLR shall also list any new NRC approved analytical methods used to determine core operating limits that are not yet referenced in the applicable approved revision of BAW-10179P-A.

c. As described in reference documents listed in accordance with the instructions given above, when an initial assumed power level of 102% of RTP is specified in a previously approved method, an actual value of 100.37% of RTP may be used when the input for reactor thermal power measurement of feedwater mass flow and temperature is from the Ultrasonic Flow Meter. The following NRC approved documents are applicable to the use of the Ultrasonic Flow Meter with a 0.37% measurement uncertainty:

1. Caldon Inc. Engineering Report-80P, "Improving Thermal Power Accuracy and Plant Safety While Increasing Operating Power Level Using the LEFM√™ System," Revision 0, dated March, 1997.

5.6 Reporting Requirements

5.6.3 CORE OPERATING LIMITS REPORT (COLR) (continued)

2. Caldon Inc. Engineering Report-157P, "Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM√™ or LEFM CheckPlus™ System," Revision 5, dated October, 2001.

d. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling System (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

e. 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 as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:

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

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 the following documents:

1. BAW-10046A, Rev. 2, "Methods of Compliance with Fracture Toughness and Operational Requirements of 10 CFR 50 Appendix G," June 1986;

2. ASME Code Section XI, Appendix G, 1995 Edition with Addenda through 1996, as modified by the alternative procedures provided in ASME Code Case N-640 and ASME Code Case N-588; and

3. BAW-2308, Revision 1-A and Revision 2-A, "Initial RT_{NDT} of Linde 80 Weld Materials," August 2005 and March 2008, respectively.

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 Reporting Requirements

5.6.5 Post Accident Monitoring Report

When a report is required by Condition B or F of LCO 3.3.17, "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 Reporting Requirements

5.6.6 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.8, "Steam Generator (SG) Program." The report shall include:

a. The scope of inspections performed on each SG;

b. Degradation mechanisms found;

c. Nondestructive examination techniques utilized for each degradation mechanism;

d. Location, orientation (if linear), and measured sizes (if available) of service induced indications;

e. Number of tubes plugged during the inspection outage for each degradation mechanism;

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

g. The results of condition monitoring, including the results of tube pulls and in-situ testing;

5.6.7 Remote Shutdown System Report

When a report is required by Condition C of LCO 3.3.18, "Remote Shutdown System," a report shall be submitted within the following 30 days. The report shall outline the action taken, the cause of the inoperability, and the plans and schedule for restoring the control circuit or transfer switch of the Function to OPERABLE status.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation

a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.

b. Access to, and activities in, each such area shall be controlled by means of Radiation Work Permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

c. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

d. Each individual (whether alone or in a group) entering such an area shall possess one of the following:

1. A radiation monitoring device that continuously displays radiation dose rates in the area;

2. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint;

3. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area; or

4. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,

5.7 High Radiation Area

5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation (continued)

(i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or

(ii) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.

e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation

a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door, gate, or other barrier that prevents unauthorized entry, and, in addition:

1. All such door and gate keys shall be maintained under the administrative control of the shift supervisor, radiation protection manager, or his or her designee; and

2. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.

b. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

5.7 High Radiation Area

5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation (continued)

c. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

d. Each individual (whether alone or in a group) entering such an area shall possess one of the following:

1. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint;

2. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area; or

3. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,

(i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area; or

(ii) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area.

4. In those cases where Specifications 5.7.2.d.2 and 5.7.2.d.3, above, are impractical or determined to be inconsistent with the "As Low As is Reasonably Achievable" principle, a radiation monitoring device that continuously displays radiation dose rates in the area.

5.7 High Radiation Area

5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation (continued)

e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

f. Such individual areas that are within a larger area where no enclosure exists for the purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, nor continuously guarded, but shall be barricaded, conspicuously posted, and a clearly visible flashing light shall be activated at the area as a warning device.

Appendix B Technical Specifications of NPF-3 has been deleted in its entirety per AMDT #133 dated 5/18/89.