ARIZONA PUBLIC SERVICE COMPANY

SALT RIVER PROJECT AGRICULTURAL IMPROVEMENT AND POWER DISTRICT

EL PASO ELECTRIC COMPANY

SOUTHERN CALIFORNIA EDISON COMPANY

PUBLIC SERVICE COMPANY OF NEW MEXICO

LOS ANGELES DEPARTMENT OF WATER AND POWER

SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY

DOCKET NO. STN 50-528

PALO VERDE NUCLEAR GENERATING STATION, UNIT 1

RENEWED FACILITY OPERATING LICENSE

Renewed License No. NPF-41

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:

   A. The application to renew Facility Operating License No. NPF-41 filed by Arizona Public Service Company, on behalf of itself and the Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority (licensees), complies with the standards and requirements of the Atomic Energy Act of 1954, as amended, and the Commission's 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 Palo Verde Nuclear Generating Station, Unit 1 (facility) has been substantially completed in conformity with Construction Permit No. CPPR-141 and the application, as amended, the provisions of the Act and the regulations of the Commission;

   C. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission (except as exempted from compliance in Section 2.D below);

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 Commission's regulations set forth in 10 CFR Chapter I (except as exempted from compliance in Section 2.D below);

E. Arizona Public Service Company* is technically qualified to engage in the activities authorized by this renewed operating license in accordance with the Commission's regulations set forth in 10 CFR Chapter I;

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 after considering available alternatives, the issuance of Renewed Facility Operating License No. NPF-41, subject to the conditions for protection of the environment set forth in the Environmental Protection Plan attached as Appendix B, is in accordance with 10 CFR Part 51 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 operating license will be in accordance with the Commission's regulations in 10 CFR Parts 30, 40 and 70; 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) during the period of extended operation; and (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21(c), such that there is reasonable assurance that the activities authorized by this renewed operating license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3, for the facility, and that any changes made to the facility's current licensing basis in order to comply with 10 CFR 54.29(a) are in accordance with the Act and the Commission's regulations.

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* Arizona Public Service Company is authorized to act as agent for Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

2. The license for fuel loading and low power testing, License No. NPF-34, issued in December 1984, was superseded by full power Operating License No. NPF-41 issued in June 1985. Renewed Facility Operating License No. NPF-41 is hereby issued to the Arizona Public Service Company, Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority (licensees) to read as follows:

   A. This renewed operating license applies to the Palo Verde Nuclear Generating Station, Unit 1, a pressurized water reactor and associated equipment (facility) owned by the licensees. The facility is located on the licensees' site in Maricopa County, Arizona and is described in the licensees' Final Safety Analysis Report, as supplemented and amended; in the related CESSAR Final Safety Analysis Report, as supplemented and amended through Amendment No. 8 and referenced in the licensees' Updated Final Safety Analysis Report; and in their Environmental Report, as supplemented and amended through Supplement No. 4.

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

      (1) Pursuant to Section 103 of the Act and 10 CFR Part 50, Arizona Public Service Company, Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority to possess, and Arizona Public Service Company (APS) to use and operate the facility at the designated location in Maricopa County, Arizona, in accordance with the procedures and limitations set forth in this renewed operating license;

      (2) Pursuant to the Act and 10 CFR Part 70, APS 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 licensees' Final Safety Analysis Report, as supplemented and amended and the CESSAR Final Safety Analysis Report as supplemented and amended through Amendment No. 8 and referenced in the licensees' Updated Final Safety Analysis Report;

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

      (4) Pursuant to the Act and 10 CFR Part 30, 40 and 70, APS 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

(5) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, APS to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

(6) (a) Pursuant to an Order of the Nuclear Regulatory Commission dated December 12, 1985, the Public Service Company of New Mexico (PNM) was authorized to transfer a portion of its ownership share in Palo Verde, Unit 1 to certain institutional investors on December 31, 1985, and at the same time has leased back from such purchasers the same interest in the Palo Verde, Unit 1 facility. The term of the lease is to January 15, 2015, subject to a right of renewal. Additional sale and leaseback transactions (for a term expiring on January 15, 2015) of all or a portion of PNM's remaining ownership share in Palo Verde Unit 1 are hereby authorized until June 30, 1987. Any such sale and leaseback transaction is subject to the representations and conditions set forth in the aforementioned applications of October 19, 1985, February 5, 1986, October 16, 1986 and November 26, 1986, and the Commission's Order of December 12, 1985, consenting to such transactions. Specifically, the lessor and anyone else who may acquire an interest under this transaction are prohibited from exercising directly or indirectly any control over the licensees of the Palo Verde Nuclear Generating Station, Unit 1. For purposes of this condition, the limitations in 10 CFR 50.81, "Creditor Regulations," as now in effect and as they may be subsequently amended, are fully applicable to the lessor and any successor in interest to that lessor as long as the renewed license for Palo Verde, Unit 1 remains in effect; this financial transaction shall have no effect on the renewed operating license for the Palo Verde nuclear facility throughout the term of the renewed operating license.

(b) Further, the licensees are also required to notify the NRC in writing prior to any change in: (i) the terms or conditions of any lease agreements executed as part of this transaction; (ii) the ANPP Participation Agreement, (iii) the existing property insurance coverage for the Palo Verde nuclear facility, Unit 1 as specified in license counsel's letter of November 26, 1985, and (iv) any action by the lessor or others that may have an adverse effect on the safe operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I 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

Arizona Public Service Company (APS) is authorized to operate the facility at reactor core power levels not in excess of 3990 megawatts thermal (100% power), in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 224, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed operating license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

(3) Antitrust Conditions

This renewed operating license is subject to the antitrust conditions delineated in Appendix C to this renewed license.

(4) Operating Staff Experience Requirements

Deleted

(5) Post-Fuel-Loading Initial Test Program (Section 14, SER and SSER 2)*

Deleted

(6) Environmental Qualification

Deleted

(7) Fire Protection Program

APS shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility, as supplemented and amended, and as approved in the SER through Supplement 11, subject to the following provision:

APS may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

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* The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

(8) Emergency Preparedness

Deleted

(9) Results of Piping Vibration Test Program (Section 3.9.2, SER)

Deleted

(10) Response to Salem ATWS Event (Section 7.2, SSER 7, and Section 1.11, SSER 8)

Deleted

(11) Supplement No. 1 to NUREG-0737 Requirements

Deleted

(12) Radiochemistry Laboratory (Section 7.3.1.5(3), Emergency Plan)

Deleted

(13) RCP Shaft Vibration Monitoring Program (Section 5.4.1, SSER 12)

Deleted

(14) Additional Conditions

The Additional Conditions contained in Appendix D, as revised through Amendment No. 212, are hereby incorporated into this renewed operating license. The licensee shall operate the facility in accordance with the Additional Conditions.

(15) Mitigation Strategy License Condition

APS shall develop and maintain strategies for addressing large fires and explosions and that includes the following key areas:

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

1. Pre-defined coordinated fire response strategy and guidance.
2. Assessment of mutual aid fire fighting assets.
3. Designated staging areas for equipment and materials.
4. Command and control.
5. Training of response personnel.

(b) Operations to mitigate fuel damage considering the following:

1. Protection and use of personnel assets.
2. Communications.

3. Minimizing fire spread.
4. Procedures for implementing integrated fire response strategy.
5. Identification of readily-available pre-staged equipment.
6. Training on integrated fire response strategy.
7. Spent fuel pool mitigation measures.

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

1. Water spray scrubbing.
2. Dose to onsite responders.

(16) License Renewal License Conditions

(a) The information in the UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), shall be incorporated into the next UFSAR no later than the next scheduled update required by 10 CFR 50.71(e), following the issuance of this renewed operating license. Until this update is complete, the licensee may make changes to the information in the supplement without Commission approval provided that the licensee evaluates such changes pursuant to the criteria in 10 CFR 50.59 and otherwise complies with the requirements of that section.

(b) The UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), describes certain future activities to be completed prior to and/or during the period of extended operation. The licensee shall complete these activities in accordance with Appendix A of NUREG-1961, "Safety Evaluation Report Related to the License Renewal of Palo Verde Nuclear Generating Station, Units 1, 2, and 3," issued April 2011. The licensee shall notify the NRC in writing when activities to be completed prior to the period of extended operation are complete and can be verified by NRC inspection.

(c) All capsules in the reactor vessel that are removed and tested must meet the test procedures and reporting requirements of American Society for Testing and Materials (ASTM) E 185-82 to the extent practicable for the configuration of the specimens in the capsule. The NRC must approve any changes to the capsule withdrawal schedule, including spare capsules, before implementation. All capsules placed in storage must be maintained for future insertion. The NRC must approve any changes to storage requirements.

D. The facility requires an exemption from Paragraph III.D.2(b)(ii) of Appendix J to 10 CFR Part 50 (Section 6.2.6, SSER 7). This exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest. This exemption is, therefore, hereby granted pursuant to 10 CFR 50.12. With the granting of this exemption, the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.

E. The licensees shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Palo Verde Nuclear Station Security Plan, Training and Qualification Plan, Safeguards Contingency Plan and Independent Spent Fuel Storage Installation Security Program Revision 3," submitted by letter dated May 16, 2006.

APS 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 APS CSP was approved by License Amendment No. 185 as supplemented by a change approved by License Amendment No. 190 and a change approved by License Amendment No. 204.

F. Deleted

G. The licensees shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims; and

H. This renewed operating license is effective as of the date of issuance and shall expire at midnight on June 1, 2045.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Attachments:
1. Attachment 1 - [Requirements for Initial Mode 1 Entry] - Deleted
2. Attachment 2 - [Operating Staff Experience Requirements] - Deleted
3. Attachment 3 - [Emergency Response Capabilities] - Deleted
4. Appendix A - Technical Specifications
5. Appendix B - Environmental Protection Plan
6. Appendix C - Antitrust Conditions
7. Appendix D - Additional Conditions

Date of Issuance: April 21, 2011

APPENDIX A

IMPROVED TECHNICAL SPECIFICATIONS

PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3
FACILITY OPERATNG LICENSE NOS. NPF-41, NPF-51 AND NPF-74

ARIZONA PUBLIC SERVICE COMPANY
DOCKET NOS. STN 50-528, STN 50-529 AND STN 50-530

APPENDIX A

TO FACILITY OPERATNG LICENSES NO. NPF-41, NPF-51 AND NPF-74
PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3

ARIZONA PUBLIC SERVICE COMPANY, ET AL
DOCKET NOS. STN 50-528, STN 50-529 AND STN 50-530

TECHNICAL SPECIFICATIONS

PALO VERDE NUCLEAR GENERATING STATION
IMPROVED TECHNICAL SPECIFICATIONS
TABLE OF CONTENTS

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.
AXIAL SHAPE INDEX (ASI)	ASI shall be the power generated in the lower half of the core less the power generated in the upper half of the core, divided by the sum of the power generated in the lower and upper halves of the core. $$ASI = \frac{\text{lower} - \text{upper}}{\text{lower} + \text{upper}}$$
AZIMUTHAL POWER TILT (T_q)	AZIMUTHAL POWER TILT shall be the power asymmetry between azimuthally symmetric fuel assemblies.
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 the entire channel, including the required sensor, alarm, display, and trip functions, and shall include 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. Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION shall include an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.

(continued)

1.1 Definitions

CHANNEL CALIBRATION (continued)	The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be: a. Analog and bistable channels – the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarms, interlocks, display and trip functions; b. Digital computer channels – the use of diagnostic programs to test digital computer hardware and the injection of simulated process data into the channel to verify OPERABILITY, including alarm and trip functions. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

(continued)

1.1 Definitions

CORE ALTERATION	CORE ALTERATION shall be the movement or manipulation of any fuel, sources, or reactivity control components [excluding control element assemblies (CEAs) withdrawn into the upper guide structure], within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. 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 dose when inhaled as the combined activities of iodine isotopes I-131, I-132, I-133, I-134, and I-135 actually present. If a specific iodine isotope is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT I-131 shall be performed using ICRP-30, 1979, Supplement to Part 1, page 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity."
DOSE EQUIVALENT XE-133	DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall

(continued)

1.1 Definitions

DOSE EQUIVALENT XE-133 (continued)	be performed using effective dose conversion factors for air submersion listed in Table B-1 of Regulatory Guide 1.109, Rev. 1, NRC, 1977.
ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
K_{n-1}	K_{n-1} is the K effective calculated by considering the actual CEA configuration and assuming that the fully or partially inserted full strength CEA of highest worth is fully withdrawn.
LEAKAGE	LEAKAGE shall be:

a. <u>Identified LEAKAGE</u>

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;
2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; or

(continued)

1.1 Definitions

LEAKAGE (continued)

3. Reactor Coolant System (RCS) LEAKAGE through a steam generator (SG) to the Secondary System (primary to secondary LEAKAGE).

b. Unidentified LEAKAGE

All LEAKAGE that is not identified LEAKAGE;

c. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

MODE

A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, cold leg reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.

NEUTRON RATED THERMAL POWER (NRTP)

The indicated neutron flux at RTP.

OPERABLE - OPERABILITY

A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

PHYSICS TESTS

PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are:

a. Described in Chapter 14, Initial Test Program of the UFSAR;

(continued)

1.1 Definitions

PHYSICS TESTS (continued)	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 site specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.9.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3990 MWt.
REACTOR PROTECTIVE 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 to the CEAs drive mechanism is interrupted. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
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 strength CEAs (shutdown and regulating) are fully inserted except for the single CEA of highest reactivity worth, which is assumed to be fully withdrawn. With any full strength CEAs not capable of being fully inserted, the withdrawn reactivity worth of these CEAs must be accounted for in the determination of SDM and b. There is no change in part strength CEA position.

1.1 Definitions (continued)

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

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTIVITY CONDITION (k_{eff})	% RATED THERMAL POWER[a]	COLD LEG TEMPERATURE (°F)
1	Power Operation	≥ 0.99	> 5	NA
2	Startup	≥ 0.99	≤ 5	NA
3	Hot Standby	< 0.99	NA	≥ 350
4	Hot Shutdown[b]	< 0.99	NA	$350 > T_{cold} > 210$
5	Cold Shutdown[b]	< 0.99	NA	≤ 210
6	Refueling[c]	NA	NA	NA

(a) Excluding decay heat.

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

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

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE

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

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

BACKGROUND

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

(continued)

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.

(continued)

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.

(continued)

1.3 Completion Times

DESCRIPTION (continued)

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

If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the discovery of the situation that required entry into the Condition, unless otherwise specified.

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.

(continued)

1.3 Completion Times (continued)

DESCRIPTION (continued)

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ."

EXAMPLES

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

EXAMPLE 1.3-1

ACTIONS

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

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

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

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

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

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

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

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

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

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-2 (continued)

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

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

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

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

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-3 (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.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

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

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

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

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

(continued)

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.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-5 (continued)

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

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

EXAMPLE 1.3-6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x. 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

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-6 (continued)

Entry into Condition A offers a choice between Required Action A.1 or A.2. Required Action A.1 has a "once per" Completion Time, which qualifies for the 25% extension, per SR 3.0.2, to each performance after the initial performance. The initial 8 hour interval of Required Action A.1 begins when Condition A is entered and the initial performance of Required Action A.1 must be 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.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

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

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

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered.

(continued)

1.3 Completion Times

EXAMPLES EXAMPLE 1.3-7 (continued)

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.

EXAMPLES EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
B. ---------NOTES--------- 1. Not applicable when second subsystem intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ------------------------- Two subsystems inoperable.	B.1 Restore at least one subsystem to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program

1.3 Completion Times

EXAMPLES EXAMPLE 1.3-8 (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
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

When a subsystem is declared inoperable, Condition A is entered. The 7 day Completion Time may be applied as discussed in Example 1.3-2. However, the licensee may elect to apply the Risk Informed Completion Time Program which permits calculation of a Risk Informed Completion Time (RICT) that may be used to complete the Required Action beyond the 7 day Completion Time.

The RICT cannot exceed 30 days. After the 7 day Completion Time has expired, the subsystem must be restored to OPERABLE status within the RICT or Condition C must also be entered.

If a second subsystem is declared inoperable, Condition B may also be entered. The Condition is modified by two Notes. The first note states it is not applicable if the second subsystem is intentionally made inoperable. The second Note provides restrictions applicable to these "loss of function" Conditions. The Required Actions of Condition B are not intended for voluntary removal of redundant subsystems from service. The Required Action is only applicable if one subsystem is inoperable for any reason and the second subsystem is found to be inoperable, or if both subsystems are found to be inoperable at the same time. If Condition B is applicable, at least one subsystem must be restored to OPERABLE status within 1 hour or Condition C must also be entered. The licensee may be able to apply a RICT or to extend the Completion Time beyond 1 hour, but not longer than 24 hours, if the requirements of the Risk Informed Completion Time Program are met. If two subsystems are inoperable and Condition B is not applicable (i.e., the second subsystem was intentionally made inoperable), LCO 3.0.3 is entered as there is no applicable Condition.

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

1.3 Completion Times

EXAMPLES EXAMPLE 1.3-8 (continued)

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

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

IMMEDIATE COMPLETION TIME

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

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE

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

DESCRIPTION

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

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

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

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.

(continued)

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 prior to entry into the MODE or other specified condition, as modified by SR 3.0.3, or the LCO is considered not met (in accordance with SR 3.0.1) and LCO 3.0.4 becomes applicable.

(continued)

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.

(continued)

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

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

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

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

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

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 In MODES 1 and 2, Departure from Nucleate Boiling Ratio (DNBR) shall be maintained at ≥ 1.34.

2.1.1.2 In MODES 1 and 2,

2.1.1.2.1 The peak fuel centerline temperature for Westinghouse supplied fuel using erbium as a burnable poison shall be maintained < 5080°F (decreasing by 58°F per 10,000 MWD/MTU for burnup and adjusting for burnable poisons per CENPD-382-P-A).

2.1.1.2.2 The peak fuel centerline temperature for Westinghouse supplied fuel using zirconium-diboride as a burnable poison, or not using a burnable poison integral to the fuel pellet, shall be maintained < 5080°F (decreasing by 58°F per 10,000 MWD/MTU for burnup).

2.1.1.2.3 The peak fuel centerline temperature for Framatome supplied fuel using gadolinium as a burnable poison, or not using a burnable poison integral to the fuel pellet, shall be maintained < 4901°F (decreasing by 13.7°F per 10,000 MWD/MTU for burnup).

2.1.2 Reactor Coolant System (RCS) Pressure SL

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

2.2 SL Violations

2.2.1 If SL 2.1.1.1 or SL 2.1.1.2 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

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

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

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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

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

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

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

a. MODE 3 within 7 hours;

b. MODE 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;

(continued)

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

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

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

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

LCO 3.0.5

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

LCO 3.0.6

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

(continued)

3.0 LCO APPLICABILITY (continued)

LCO 3.0.6 (continued)

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

Special test exception (STE) LCOs in each applicable LCO section allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with STE LCOs is optional. When an STE LCO is desired to be met but is not met, the ACTIONS of the STE LCO shall be met. When an STE LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

LCO 3.0.8

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 functions(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.

(continued)

3.0 SR APPLICABILITY

SR 3.0.3 (continued)	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. 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) - Reactor Trip Breakers Open

LCO 3.1.1 SDM shall be ≥ the value in the COLR.

APPLICABILITY: MODES 3, 4, and 5 with the Reactor Trip Breakers Open or the CEA drive system not capable of CEA withdrawal.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify SDM is ≥ the value in the COLR.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 SHUTDOWN MARGIN (SDM) - Reactor Trip Breakers Closed

LCO 3.1.2 Reactivity shall be controlled by:

a. SDM shall be ≥ the value in the COLR.

b. K_{N-1} shall be < 0.99 when T_c ≤ 500°F.

c. Reactor criticality shall not be achieved with shutdown group CEA movement.

APPLICABILITY: MODES 3, 4, and 5 with the Reactor Trip Breakers Closed and the CEA drive system capable of CEA withdrawal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes
B. K_{N-1} not within limit when T_c ≤ 500°F.	B.1 Vary CEA position to restore within limits.	15 minutes
<u>OR</u>	<u>AND</u>	
Reactor criticality can be achieved by shutdown group CEA movement.	B.2 Initiate boration to restore within limits.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	Verify SDM is $\geq$ the value in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.1.2.2	-------------------NOTE------------------- Only required if $T_C \leq 500°F$. --- Verify $K_{N-1} < 0.99$.	In accordance with the Surveillance Frequency Control Program
SR 3.1.2.3	Verify criticality cannot be achieved with shutdown group CEA movement.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Reactivity Balance

LCO 3.1.3 The core reactivity balance shall be within ± 1% $\Delta k/k$ of predicted values.

APPLICABILITY: MODE 1

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	-------------------NOTES------------------- The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 effective full power days (EFPD) after each fuel loading. --- Verify overall core reactivity balance is within ± 1.0% $\Delta k/k$ of predicted values.	Prior to entering MODE 1 after fuel loading AND -----NOTE----- Only required after 60 EFPD -------------- In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Moderator Temperature Coefficient (MTC)

LCO 3.1.4 The MTC shall be maintained within the limits specified in the COLR, and a maximum positive limit that varies linearly from 0.5 E-4 $\Delta k/k/°F$ at 0% RTP to 0.0 $\Delta k/k/°F$ at 100% 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 3.1.4.1	------------------NOTE------------------ This Surveillance is not required to be performed prior to entry into MODE 2. -- Verify MTC is within the upper limit specified in the COLR.	Prior to entering MODE 1 after each fuel loading AND ------NOTE----- Only required to be performed when MTC determined prior to entering MODE 1 is verified using adjusted predicted MTC --------------- Each fuel cycle within 7 EFPD of reaching 40 EFPD core burnup

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	------------------NOTES------------------ 1. This Surveillance is not required to be performed prior to entry into MODE 1 or 2. 2. If the MTC is more negative than the limit specified in the COLR when extrapolated to the end of cycle, SR 3.1.4.2 may be repeated. Shutdown must occur prior to exceeding the minimum allowable boron concentration at which MTC is projected to exceed the lower limit. 3. The MTC verification at 2/3 of expected core burnup is not required if the results of the measurement at 40 EFPD are within a tolerance of ± 0.16*10E-4 $\Delta k/k/°F$ from the corresponding design values. ---	
	Verify MTC is within the lower limit specified in the COLR.	Each fuel cycle within 7 EFPD of reaching 40 EFPD core burnup AND Each fuel cycle within 7 EFPD of reaching 2/3 of expected core burnup

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Control Element Assembly (CEA) Alignment

LCO 3.1.5 All full strength CEAs shall be OPERABLE.

AND

All full strength and part strength CEAs shall be aligned to within 6.6 inches (indicated position) of all other CEAs in their respective groups

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more CEAs misaligned from its group by > 6.6 inches and ≤ 9.9 inches. OR One CEA misaligned from its group by > 9.9 inches.	A.1 Reduce THERMAL POWER in accordance with the limits in the COLR. AND A.2 Restore CEA alignment.	1 hour 2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Only one CEA position indicator channel OPERABLE for one or more CEAs.	B.1	Restore at least two position indicator channels to OPERABLE status.	6 hours
	OR		
	B.2	Verify the CEA Group(s) with the inoperable position indicators are fully withdrawn or fully inserted while maintaining the insertion limits of LCO 3.1.6, LCO 3.1.7 and LCO 3.1.8.	6 hours AND Once per 12 hours thereafter.
C. Required Action and associated Completion Time of Condition A or B not met OR One or more full strength CEAs inoperable.	C.1	Be in MODE 3.	6 hours
D. Two or more CEAs misaligned from their group by > 9.9 inches.	D.1	Open the reactor trip breakers.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify the indicated position of each full strength and part strength CEA is within 6.6 inches of all other CEAs in its group.	In accordance with the Surveillance Frequency Control Program
SR 3.1.5.2	Verify that, for each CEA, its OPERABLE CEA position indicator channels indicate within 5.2 inches of each other.	In accordance with the Surveillance Frequency Control Program
SR 3.1.5.3	Verify full strength CEA freedom of movement (trippability) by moving each individual full strength CEA that is not fully inserted in the core at least 5 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.1.5.4	Perform a CHANNEL FUNCTIONAL TEST of each reed switch position transmitter channel.	In accordance with the Surveillance Frequency Control Program
SR 3.1.5.5	Verify each full strength CEA drop time $\leq$ 4.0 seconds.	Prior to reactor criticality, after each removal of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Shutdown Control Element Assembly (CEA) Insertion Limits

LCO 3.1.6 All shutdown CEAs shall be withdrawn to ≥ 147.75 inches.

APPLICABILITY: MODE 1,
MODE 2 with any regulating CEA not fully inserted.

---------------------------NOTE---------------------------
This LCO is not applicable while performing SR 3.1.5.3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One shutdown CEA not within limit.	A.1 Restore shutdown CEA to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify each shutdown CEA is withdrawn ≥ 147.75 inches.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Regulating Control Element Assembly (CEA) Insertion Limits

LCO 3.1.7 The power dependent insertion limit (PDIL) alarm circuit shall be OPERABLE, and with the Core Operating Limit Supervisory System (COLSS) in service or with COLSS out of service, the regulating CEA groups shall be limited to the withdrawal sequence and insertion limits specified in the COLR and the associated time restraints.

APPLICABILITY: MODES 1 and 2.

---------------------------NOTE---------------------------
This LCO is not applicable while conducting SR 3.1.5.3 or for up to 2 hours following a reactor power cutback operation.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Regulating CEA groups inserted beyond the transient insertion limit with COLSS in service or with COLSS out of service.	A.1 Restore regulating CEA groups to within limits.	2 hours
	<u>OR</u>	
	A.2 Reduce THERMAL POWER to less than or equal to the fraction of RTP allowed by the CEA group position and insertion limits specified in the COLR.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Regulating CEA groups inserted between the short term steady state insertion limit and the transient insertion limit for > 4 hours per 24 hour interval with COLSS in service or with COLSS out of service.	B.1 Restrict increases in THERMAL POWER to ≤ 5% RTP per hour.	15 minutes
C. Regulating CEA groups inserted between the long term steady state insertion limit and the transient insertion limit for intervals > 5 effective full power days (EFPD) per 30 EFPD interval or > 14 EFPD per 365 EFPD interval with COLSS in service or with COLSS out of service.	C.1 Restore regulating CEA groups to within limits.	2 hours
D. PDIL alarm circuit inoperable.	D.1 Perform SR 3.1.7.1.	1 hour <u>AND</u> Once per 4 hours thereafter
E. Required Actions and associated Completion Times not met.	E.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.7.1	-------------------NOTE------------------- This Surveillance is not required to be performed prior to entry into MODE 2. -- Verify each regulating CEA group position is within its insertion limits.	 In accordance with the Surveillance Frequency Control Program
SR 3.1.7.2	Verify the accumulated times during which the regulating CEA groups are inserted beyond the steady state insertion limits but within the transient insertion limits.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.3	Verify PDIL alarm circuit is OPERABLE.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 Part Strength Control Element Assembly (CEA) Insertion Limits

LCO 3.1.8 The part strength CEA groups shall be limited to the insertion limits specified in the COLR.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Part strength CEA groups inserted beyond the transient insertion limit.	A.1 Restore part strength CEA groups to within the limit. OR A.2 Reduce THERMAL POWER to less than or equal to that fraction of RTP specified in the COLR.	2 hours 2 hours
B. Part strength CEA groups inserted between the long term steady state insertion limit and the transient insertion limit for intervals ≥ 7 effective full power days (EFPD) per 30 EFPD or ≥ 14 EFPD per 365 EFPD interval.	B.1 Restore part strength CEA groups to within the long term steady state insertion limit.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.8.1 Verify part strength CEA group position.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.9 Special Test Exception (STE) — SHUTDOWN MARGIN (SDM)

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

LCO 3.1.2, "SHUTDOWN MARGIN (SDM)-Reactor Trip Breakers Closed";
LCO 3.1.6, "Shutdown Control Element Assembly (CEA) Insertion Limits", and
LCO 3.1.7 "Regulating Control Element Assembly (CEA) Insertion Limits"

may be suspended for measurement of CEA worth, provided shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion or the reactor is subcritical by at least the reactivity equivalent of the highest CEA worth.

APPLICABILITY: MODES 2 and 3 during PHYSICS TESTS.

---------------------------NOTE---------------------------
Operation in MODE 3 shall be limited to 6 consecutive hours.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any full strength CEA not fully inserted and less than the required shutdown reactivity available for trip insertion. <u>OR</u> All full strength CEAs inserted and the reactor subcritical by less than the above required shutdown reactivity equivalent.	A.1 Initiate boration to restore required shutdown reactivity.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.9.1	Verify that the position of each CEA not fully inserted is within the acceptance criteria for available negative reactivity addition.	In accordance with the Surveillance Frequency Control Program
SR 3.1.9.2	Verify each full strength CEA not fully inserted is capable of full insertion when tripped from at least the 50% withdrawn position.	Within 7 days prior to reducing SDM requirements to less than the limits of LCO 3.1.2
SR 3.1.9.3	-------------------NOTE------------------- Only required to be performed in Mode 3. --	
	Verify that with all full strength CEAs fully inserted, the reactor is subcritical within the acceptance criteria.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.10 Special Test Exceptions (STE) — MODES 1 and 2

LCO 3.1.10 During performance of PHYSICS TESTS, the requirements of:

LCO 3.1.4, "Moderator Temperature Coefficient (MTC)";
LCO 3.1.5, "Control Element Assembly (CEA) Alignment";
LCO 3.1.6, "Shutdown Control Element Assembly (CEA) Insertion Limits";
LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits";
LCO 3.1.8, "Part Strength CEA Insertion Limits";
LCO 3.2.2, "Planar Radial Peaking Factors (Fxy)";
LCO 3.2.3, "AZIMUTHAL POWER TILT (Tq)";
LCO 3.2.5, "AXIAL SHAPE INDEX (ASI)"; and
LCO 3.3.3, "Control Element Assembly Calculators (CEACs)"

may be suspended, provided:

a. THERMAL POWER is restricted to the test power plateau, which shall not exceed 85% RTP: and

b. Shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion.

APPLICABILITY: MODES 1 and 2 during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Test power plateau exceeded.	A.1 Reduce THERMAL POWER to less than or equal to the test power plateau.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Suspend PHYSICS TESTS.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.10.1	Verify THERMAL POWER equal to or less than the test power plateau.	In accordance with the Surveillance Frequency Control Program
SR 3.1.10.2	Verify that the position of each CEA not fully inserted is within the acceptance criteria for available negative reactivity addition.	In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.11 Special Test Exceptions (STE) - Reactivity Coefficient Testing

LCO 3.1.11 During performance of PHYSICS TESTS, the requirements of:

LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits";
LCO 3.1.8, "Part Strength Control Element Assembly (CEA) Insertion Limits;" and
LCO 3.4.1, "RCS Pressure, Temperature and Flow limits" (RCS Cold Leg Temperature only)

may be suspended, provided LHR and DNBR do not exceed the limits in the COLR.

APPLICABILITY: MODE 1 with Thermal Power > 20% RTP during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LHR or DNBR outside the limits specified in the COLR.	A.1 Reduce THERMAL POWER to restore LHR and DNBR to within limits.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Suspend PHYSICS TESTS.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.11.1	Verify LHR and DNBR do not exceed limits by performing SR 3.2.1.1 and SR 3.2.4.1.	Continuously

3.2 POWER DISTRIBUTION LIMITS

3.2.1 Linear Heat Rate (LHR)

LCO 3.2.1 LHR shall not exceed the limits specified in the COLR.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Core Operating Limit Supervisory System (COLSS) calculated core power exceeds the COLSS calculated core power operating limit based on LHR.	A.1 Restore LHR to within limits.	1 hour
B. LHR not within region of acceptable operation when the COLSS is out of service.	B.1 Determine trend in LHR.	Once per 15 minutes
	<u>AND</u>	
	B.2.1 With an adverse trend, restore LHR to within limit.	1 hour
	<u>OR</u>	
	B.2.2 With no adverse trend, restore LHR to within limits.	4 hours
C. Required Action and associated Completion Time not met.	C.1 Reduce THERMAL POWER to ≤ 20% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.2.1.1	-------------------NOTE------------------- 1. Only applicable when COLSS is out of service. With COLSS in service, LHR is continuously monitored. 2. Not required to be performed until 2 hours after MODE 1 with THERMAL POWER > 20% RTP. -- Verify LHR, as indicated on any OPERABLE local power density channel, is within its limits.	In accordance with the Surveillance Frequency Control Program
SR 3.2.1.2	Verify the COLSS margin alarm actuates at a THERMAL POWER equal to or less than the core power operating limit based on LHR.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.2 Planar Radial Peaking Factors (F_{xy})

LCO 3.2.2 The measured Planar Radial Peaking Factors (F^M_{xy}) shall be equal to or less than the Planar Radial Peaking Factors (F^C_{xy}). (These factors are used in the Core Operating Limit Supervisory System (COLSS) and in the Core Protection Calculators (CPCs)).

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. $F^M_{xy} > F^C_{xy}$.	A.1.1	Adjust addressable CPC constants to increase the multiplier applied to planar radial peaking by a factor $\geq F^M_{xy}/F^C_{xy}$.	6 hours
		<u>AND</u>	
	A.1.2	Maintain a margin to the COLSS operating limits of $[(F^M_{xy}/F^C_{xy})-1.0] \times 100\%$.	6 hours
	<u>OR</u>		
	A.2	Adjust the affected F^C_{xy} used in the COLSS and CPCs to a value greater than or equal to the measured F^M_{xy}.	6 hours
	<u>OR</u>		
	A.3	Reduce THERMAL POWER to ≤ 20% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify measured F_{xy}^{M} obtained using the Incore Detector System is equal to or less than the value of F_{xy}^{C} used in the COLSS and CPCs.	Once after each fuel loading with THERMAL POWER > 40% RTP but prior to operations above 70% RTP AND In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.3 AZIMUTHAL POWER TILT (T_q)

LCO 3.2.3 The measured T_q shall be less than or equal to the T_q allowance used in the Core Protection Calculators (CPCs).

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Measured T_q greater than the allowance used in the CPCs and within the limit in the COLR with COLSS in service <u>OR</u> Measured T_q greater than the allowance in the CPCs and ≤ 0.03 with COLSS out of service.	A.1 Restore measured T_q. <u>OR</u> A.2 Adjust the T_q allowance in the CPCs to greater than or equal to the measured value.	2 hours 2 hours
B. Measured T_q not within the limit in the COLR with COLSS in service. <u>OR</u> Measured $T_q > 0.03$ with COLSS out of service.	------------NOTE------------ Required Action B.5 must be completed if power reduction commences prior to restoring T_q to within the limit. ---------------------------- B.1 Reduce THERMAL POWER to $\leq$ 50% RTP. <u>AND</u>	 4 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Reduce Variable Overpower trip setpoints to ≤ 55% RTP.	16 hours
	<u>AND</u>	
	B.3 Restore the measured T_q to less than the T_q allowance used in the CPCs.	Prior to increasing THERMAL POWER
	<u>AND</u>	
	B.4 Correct the cause for measured T_q not within limit.	Prior to increasing THERMAL POWER > 50% RTP.
	<u>AND</u>	
	B.5 Subsequent to power operation > 50% RTP, verify measured T_q is within the limit.	Once per hour for 12 hours <u>OR</u> Until verified at ≥ 95% RTP
C. Required Actions and associated Completion Times not met.	C.1 Reduce THERMAL POWER to ≤ 20%.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	-------------------NOTES------------------ 1. Only applicable when COLSS is out of service. With COLSS in service, this parameter is continuously monitored. 2. Not required to be performed until 2 hours after MODE 1 with THERMAL POWER > 20% RTP. --- Calculate T_q and verify it is within the limit.	In accordance with the Surveillance Frequency Control Program
SR 3.2.3.2	Verify COLSS azimuthal tilt alarm is actuated at a T_q value less than the T_q value used in the CPCs.	In accordance with the Surveillance Frequency Control Program
SR 3.2.3.3	Independently confirm the validity of the COLSS calculated T_q by use of the incore detectors.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.4 Departure From Nucleate Boiling Ratio (DNBR)

LCO 3.2.4 The DNBR shall be maintained by one of the following methods:

a. Core Operating Limit Supervisory System (COLSS) In Service:

1. Maintaining COLSS calculated core power less than or equal to COLSS calculated core power operating limit based on DNBR when at least one Control Element Assembly Calculator (CEAC) is OPERABLE in each OPERABLE Core Protection Calculator (CPC) channel; or

2. Maintaining COLSS calculated core power less than or equal to COLSS calculated core power operating limit based on DNBR decreased by the allowance specified in the COLR when the CEAC requirements of LCO 3.2.4.a.1 are not met.

b. COLSS Out of Service:

1. Operating within the region of acceptable operation specified in the COLR using any OPERABLE Core Protection Calculator (CPC) channel when at least one Control Element Assembly Calculator (CEAC) is OPERABLE in each OPERABLE CPC channel; or

2. Operating within the region of acceptable operation specified in the COLR using any OPERABLE CPC channel (with both CEACs inoperable) when the CEAC requirements of LCO 3.2.4.b.1 are not met.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. COLSS calculated core power not within limit.	A.1 Restore the DNBR to within limit.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. DNBR outside the region of acceptable operation when COLSS is out of service.	B.1 Determine trend in DNBR. AND B.2.1 With an adverse trend, restore DNBR to within limit. OR B.2.2 With no adverse trend, restore DNBR to within limit.	Once per 15 minutes 1 hour 4 hours
C. Required Action and associated Completion Time not met.	C.1 Reduce THERMAL POWER to ≤ 20% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	-------------------NOTE-------------------- 1. Only applicable when COLSS is out of service. With COLSS in service, this parameter is continuously monitored. 2. Not required to be performed until 2 hours after MODE 1 with THERMAL POWER > 20% RTP. --- Verify DNBR, as indicated on any OPERABLE DNBR channels, is within the limit of the COLR, as applicable.	In accordance with the Surveillance Frequency Control Program
SR 3.2.4.2	Verify COLSS margin alarm actuates at a THERMAL POWER level equal to or less than the core power operating limit based on DNBR.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.5 AXIAL SHAPE INDEX (ASI)

LCO 3.2.5 ASI shall be within the limits specified in the COLR.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.5.1	------------------Notes------------------ Not required to be performed until 2 hours after MODE 1 with THERMAL POWER > 20% RTP. --- Verify ASI is within limits.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.1 Reactor Protective System (RPS) Instrumentation – Operating

LCO 3.3.1 Four RPS trip and bypass removal channels for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one automatic RPS trip channel inoperable.	A.1 Place channel in bypass or trip. <u>AND</u> A.2 Restore channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
B. One or more Functions with two automatic RPS trip channels inoperable.	B.1 Place one channel in bypass and the other in trip.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with one automatic bypass removal channel inoperable.	C.1 Disable bypass channel.	1 hour
	OR	
	C.2.1 Place affected automatic trip channel in bypass or trip.	1 hour
	AND	
	C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry
D. One or more Functions with two automatic bypass removal channels inoperable.	D.1 Disable bypass channels.	1 hour
	OR	
	D.2 Place one affected automatic trip channel in bypass and place the other in trip.	1 hour
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3	6 hours

(continued)

SURVEILLANCE REQUIREMENTS

------------------------------------NOTE------------------------------------
Refer to Table 3.3.1-1 to determine which SR shall be performed for each RPS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform a CHANNEL CHECK of each RPS instrument channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2	------------------NOTE------------------ Not required to be performed until 12 hours after THERMAL POWER ≥ 70% RTP. -- Verify total Reactor Coolant System (RCS) flow rate as indicated by each CPC is less than or equal to the RCS total flow rate. If necessary, adjust the CPC addressable constant flow coefficients such that each CPC indicated flow is less than or equal to the RCS flow rate.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3	Check the CPC System Event Log.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.4	-------------------NOTES------------------ 1. Not required to be performed until 12 hours after THERMAL POWER ≥ 20% RTP. 2. The daily calibration may be suspended during PHYSICS TESTS, provided the calibration is performed upon reaching each major test power plateau and prior to proceeding to the next major test power plateau. -- Perform calibration (heat balance only) and adjust the linear power level signals and the CPC addressable constant multipliers to make the CPC ΔT power and CPC nuclear power calculations agree with the calorimetric, if the absolute difference is ≥ 2% when THERMAL POWER is ≥ 80% RTP. Between 20% and 80% RTP the maximum difference is -0.5% to 10%.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.5	-------------------NOTE-------------------- Not required to be performed until 12 hours after THERMAL POWER ≥ 70% RTP. -- Verify total RCS flow rate indicated by each CPC is less than or equal to the RCS flow determined either using the reactor coolant pump differential pressure instrumentation and the ultrasonic flow meter adjusted pump curves or by calorimetric calculations.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.6	-------------------NOTE------------------- Not required to be performed until 12 hours after THERMAL POWER ≥ 15% RTP. --	
	Verify linear power subchannel gains of the excore detectors are consistent with the values used to establish the shape annealing matrix elements in the CPCs.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.7	-------------------NOTES------------------- 1. The CPC CHANNEL FUNCTIONAL TEST shall include verification that the correct values of addressable constants are installed in each OPERABLE CPC. 2. Not required to be performed for logarithmic power level channels until 2 hours after reducing logarithmic power below 1E-4% NRTP. --	
	Perform CHANNEL FUNCTIONAL TEST on each channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.8	-------------------NOTE------------------- Neutron detectors are excluded from the CHANNEL CALIBRATION. --	
	Perform CHANNEL CALIBRATION of the power range neutron flux channels.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.9	-------------------NOTE------------------- Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION on each channel, including bypass removal functions.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.10	Perform a CHANNEL FUNCTIONAL TEST on each CPC channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.11	Using the incore detectors, verify the shape annealing matrix elements to be used by the CPCs.	Once after each refueling prior to exceeding 70% RTP
SR 3.3.1.12	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.	Once within 92 days prior to each reactor startup
SR 3.3.1.13	-------------------NOTE------------------- Neutron detectors are excluded. -- Verify RPS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Variable Over Power	1,2	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.9 SR 3.3.1.13	Ceiling ≤ 111.0% RTP Band ≤ 9.9% RTP Incr. Rate ≤ 11.0%/min RTP Decr. Rate > 5%/sec RTP
2. Logarithmic Power Level – High[(a)]	2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.12 SR 3.3.1.13	≤ 0.011% NRTP
3. Pressurizer Pressure – High	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≤ 2388 psia
4. Pressurizer Pressure – Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.12 SR 3.3.1.13	≥ 1821 psia
5. Containment Pressure – High	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≤ 3.2 psig
6. Steam Generator #1 Pressure – Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≥ 955 psia[(aa)]
7. Steam Generator #2 Pressure – Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≥ 955 psia[(aa)]

(continued)

(a) Trip may be bypassed when logarithmic power is > 1E-4% NRTP. Bypass shall be automatically removed when logarithmic power is ≤ 1E-4% NRTP.

(aa) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predetermined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

2. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the UFSAR Trip Setpoint, or within the as left tolerance of a setpoint that is more conservative than the UFSAR Trip Set Point; otherwise the channel shall be declared inoperable. The UFSAR Trip Setpoint and the methodology used to determine 1) the UFSAR Trip Setpoint, 2) the predetermined as found acceptance criteria band, and 3) the as-left setpoint tolerance band are specified in the UFSAR.

Table 3.3.1-1 (page 2 of 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
8. Steam Generator #1 Level – Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≥ 43.7%
9. Steam Generator #2 Level – Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≥ 43.7%
10. Steam Generator #1 Level – High	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≤ 91.5%
11. Steam Generator #2 Level – High	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≤ 91.5%
12. Reactor Coolant Flow, Steam Generator #1 Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	Ramp: ≤ 0.115 psid/sec. Floor: ≥ 12.49 psid Step: ≤ 17.2 psid
13. Reactor Coolant Flow, Steam Generator #2-Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	Ramp: ≤ 0.115 psid/sec. Floor: ≥ 12.49 psid Step: ≤ 17.2 psid

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
14. Local Power Density – High(b)	1.2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	≤ 21.0 kW/ft
15. Departure From Nucleate Boiling Ratio (DNBR) – Low(b)	1.2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	≥ 1.34

(b) Trip may be bypassed when logarithmic power is < 1E-4% NRTP. Bypass shall be automatically removed when logarithmic power is ≥ 1E-4% NRTP.

3.3 INSTRUMENTATION

3.3.2 Reactor Protective System (RPS) Instrumentation – Shutdown

LCO 3.3.2 Four RPS trip and bypass removal channels for each Function in Table 3.3.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2-1.

ACTIONS

-----------------------------------NOTE-----------------------------------
Separate condition entry is allowed for each RPS Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more functions with one automatic RPS trip channel inoperable.	A.1 Place channel in bypass or trip. AND	1 hour
	A.2 Restore channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry
B. One or more functions with two automatic RPS trip channels inoperable.	B.1 Place one channel in bypass and place the other in trip.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more functions with one automatic bypass removal channel inoperable.	C.1 Disable bypass channel. OR C.2.1 Place affected channel in bypass or trip. AND C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	1 hour 1 hour Prior to entering MODE 2 following next MODE 5 entry
D. One or more functions with two automatic bypass removal channels inoperable.	D.1 Disable bypass channels. OR D.2 Place one affected automatic trip channel bypass and place the other in trip.	1 hour 1 hour
E. Required Action and associated Completion Time not met.	E.1 Open all RTCBs.	1 hour

SURVEILLANCE REQUIREMENTS

------------------------------------NOTE------------------------------------
Refer to Table 3.3.2-1 to determine which SR shall be performed for each RPS function.

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform a CHANNEL CHECK of each RPS instrument channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2	Perform a CHANNEL FUNCTIONAL TEST on each channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.3	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal function.	Once within 92 days prior to each reactor startup
SR 3.3.2.4	------------------NOTE------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform a CHANNEL CALIBRATION on each channel, including bypass removal function.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.5	-------------------NOTE------------------- Neutron detectors are excluded. -- Verify RPS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

Table 3.3.2-1
Reactor Protective System Instrumentation - Shutdown

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALVE
1. Logarithmic Power Level-High[d]	3[a], 4[a], 5[a]	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.5	≤ 0.011% NRTP[c]
2. Steam Generator #1 Pressure-Low[b]	3[a]	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.5	≥ 955 psia[e]
3. Steam Generator #2 Pressure-Low[b]	3[a]	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.5	≥ 955 psia[e]

(a) With any Reactor Trip Circuit Breakers (RTCBs) closed and any control element assembly capable of being withdrawn.

(b) The setpoint may be decreased as steam pressure is reduced, provided the margin between steam pressure and the setpoint is maintained ≤ 200 psig. The setpoint shall be automatically increased to the normal setpoint as steam pressure is increased.

(c) The setpoint must be reduced to ≤ 1E-4% NRTP when less than 4 RCPs are running.

(d) Trip may be bypassed when logarithmic power is > 1E-4% NRTP. Bypass shall be automatically removed when logarithmic power is ≤ 1E-4% NRTP.

(e) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predetermined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

2. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the UFSAR Trip Setpoint, or within the as left tolerance of a setpoint that is more conservative than the UFSAR Trip Set Point; otherwise the channel shall be declared inoperable. The UFSAR Trip Setpoint and the methodology used to determine 1) the UFSAR Trip Setpoint, 2) the predetermined as found acceptance criteria band, and 3) the as-left setpoint tolerance band are specified in the UFSAR.

3.3 INSTRUMENTATION

3.3.3 Control Element Assembly Calculators (CEACs)

LCO 3.3.3 Two CEACs shall be OPERABLE in each CPC channel

APPLICABILITY: MODES 1 and 2.

ACTIONS

-----------------------------NOTE-----------------------------
Separate condition entry is allowed for each CPC channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CEAC inoperable in one or more CPC channels.	A.1 Declare the affected CPC channel(s) inoperable.	Immediately
	OR	
	A.2.1 Perform SR 3.1.5.1	Once per 4 hours
	AND	
	A.2.2 Restore CEAC to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR Both CEACs inoperable in one or more CPC channels.	B.1 Declare the affected CPC channel(s) inoperable. OR	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.1 Verify the departure from nucleate boiling ratio requirement of LCO 3.2.4, "Departure from Nucleate Boiling Ratio (DNBR)," is met.	4 hours
	<u>AND</u>	
	B.2.2 Verify all full strength and part strength control element assembly (CEA) groups are fully withdrawn and maintained fully withdrawn, except during Surveillance testing pursuant to SR 3.1.5.3 or for control, when CEA group #5 may be inserted to a maximum of 127.5 inches withdrawn.	4 hours
	<u>AND</u>	
	B.2.3 Verify the "RSPT/CEAC Inoperable" addressable constant in each affected core protection calculator (CPC) is set to indicate that both CEACs are inoperable.	4 hours
	<u>AND</u>	
		(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.2.4	Verify the Control Element Drive Mechanism Control System is placed in "STANDBY MODE" and maintained in "STANDBY MODE," except during CEA motion permitted by Required Action B.2.2.	4 hours
	AND		
	B.2.5	Perform SR 3.1.5.1.	Once per 4 hours
	AND		
	B.2.6	Disable the Reactor Power Cutback System (RPCS)	4 hours
C. Required Action and associated Completion Time of Condition B not met.	C.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform a CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.2	Deleted	
SR 3.3.3.3	Perform a CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.4	Perform a CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.5	Perform a CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.4 Reactor Protective System (RPS) Logic and Trip Initiation

LCO 3.3.4 Six channels of RPS Matrix Logic, four channels of RPS Initiation Logic, four channels of reactor trip circuit breakers (RTCBs), and four channels of Manual Trip shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5, with any RTCBs closed and any control element assemblies capable of being withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Matrix Logic channel inoperable. OR Three Matrix Logic channels inoperable due to a common power source failure de-energizing three matrix power supplies.	A.1 Restore channel to OPERABLE status.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. --------------------- One channel of Manual Trip, RTCB, or Initiation Logic inoperable in MODE 1 or 2.	B.1 Open the affected RTCB. OR B.2.1 Open the redundant RTCB in the affected Trip Leg. AND B.2.2 Open the affected RTCB.	1 hour 1 hour 48 hours
C. ---------NOTE--------- RTCBs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. --------------------- One channel of Manual Trip, RTCB, or Initiation Logic inoperable in MODE 3, 4, or 5.	C.1 Open the affected RTCB.	48 hours
D. Two channels of RTCBs, Manual Trip or Initiation Logic affecting the same trip leg inoperable.	D.1 Open the affected RTCBs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, B, or D not met. OR One or more Functions with more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel inoperable for reasons other than Condition A or D.	E.1 Be in MODE 3. AND E.2 Open all RTCBs.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel and Manual Trip channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2	Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.3	Perform a CHANNEL FUNCTIONAL TEST on each RTCB.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.5 Engineered Safety Features Actuation System (ESFAS) Instrumentation

LCO 3.3.5 Four ESFAS trip and bypass removal channels for each Function 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 ESFAS Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one automatic ESFAS trip channel inoperable.	A.1 Place channel in bypass or trip. AND A.2 Restore channel to OPERABLE status.	1 hour Prior to entering MODE 2 following next MODE 5 entry
B. One or more Functions with two automatic ESFAS trip channels inoperable.	B.1 Place one channel in bypass and the other in trip.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with one automatic bypass removal channel inoperable.	C.1 Disable bypass channel.	1 hour
	OR	
	C.2.1 Place affected automatic trip channel in bypass or trip.	1 hour
	AND	
	C.2.2 Restore bypass removal channel and associated automatic trip channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry
D. One or more Functions with two automatic bypass removal channels inoperable.	D.1 Disable bypass channels.	1 hour
	OR	
	D.2 Place one affected automatic trip channel in bypass and place the other in trip.	1 hour
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3.	6 hours
	AND	
	E.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform a CHANNEL CHECK of each ESFAS channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2	Perform a CHANNEL FUNCTIONAL TEST of each ESFAS channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.3	Perform a CHANNEL CALIBRATION of each ESFAS channel, including bypass removal functions.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.4	Verify ESF RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.5	Perform a CHANNEL FUNCTIONAL TEST on each automatic bypass removal channel.	Once within 92 days prior to each reactor startup

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	ALLOWABLE VALUE
1. Safety Injection Actuation Signal		
a. Containment Pressure – High	1,2,3	≤ 3.2 psig
b. Pressurizer Pressure – Low[(a)]		≥ 1821 psia
2. Containment Spray Actuation Signal		
a. Containment Pressure – High High	1,2,3	≤ 8.9 psig
3. Containment Isolation Actuation Signal		
a. Containment Pressure – High	1,2,3	≤ 3.2 psig
b. Pressurizer Pressure – Low[(a)]		≥ 1821 psia
4. Main Steam Isolation Signal[(c)]		
a. Steam Generator #1 Pressure–Low[(b)]	1,2,3	≥ 955 psia[(d)]
b. Steam Generator #2 Pressure–Low[(b)]		≥ 955 psia[(d)]
c. Steam Generator #1 Level-High		≤ 91.5%
d. Steam Generator #2 Level-High		≤ 91.5%
e. Containment Pressure-High		≤ 3.2 psig
5. Recirculation Actuation Signal		
a. Refueling Water Storage Tank Level–Low	1,2,3	≥ 9.15 and ≤ 9.65%[(d)]
6. Auxiliary Feedwater Actuation Signal SG #1 (AFAS-1)		
a. Steam Generator #1 Level–Low	1,2,3	≥ 25.3%
b. SG Pressure Difference–High		≤ 192 psid
7. Auxiliary Feedwater Actuation Signal SG #2 (AFAS-2)		
a. Steam Generator #2 Level–Low	1,2,3	≥ 25.3%
b. SG Pressure Difference–High		≤ 192 psid

(a) The setpoint may be decreased to a minimum value of 100 psia, as pressurizer pressure is reduced, provided the margin between pressurizer pressure and the setpoint is maintained ≤ 400 psia or ≥ 140 psia greater than the saturation pressure of the RCS cold leg when the RCS cold leg temperature is ≥ 485°F. Trips may be bypassed when pressurizer pressure is < 400 psia. Bypass shall be automatically removed when pressurizer pressure is ≥ 500 psia. The setpoint shall be automatically increased to the normal setpoint as pressurizer pressure is increased.

(b) The setpoint may be decreased as steam pressure is reduced, provided the margin between steam pressure and the setpoint is maintained ≤ 200 psig. The setpoint shall be automatically increased to the normal setpoint as steam pressure is increased.

(c) The Main Steam Isolation Signal (MSIS) Function (Steam Generator Pressure – Low, Steam Generator Level-High and Containment Pressure – High signals) is not required to be OPERABLE when all associated valves isolated by the MSIS Function are closed.

(d) 1. If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predetermined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

2. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the UFSAR Trip Setpoint, or within the as left tolerance of a setpoint that is more conservative than the UFSAR Trip Set Point; otherwise the channel shall be declared inoperable. The UFSAR Trip Setpoint and the methodology used to determine 1) the UFSAR Trip Setpoint, 2) the predetermined as found acceptance criteria band, and 3) the as-left setpoint tolerance band are specified in the UFSAR.

3.3 INSTRUMENTATION

3.3.6 Engineered Safety Features Actuation System (ESFAS) Logic and Manual Trip

LCO 3.3.6 Six channels of ESFAS Matrix Logic, four channels of ESFAS Initiation Logic, two channels of Actuation Logic, and four channels of Manual Trip shall be OPERABLE for each Function in Table 3.3.6-1.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one Matrix Logic channel inoperable. OR Three Matrix Logic channels are inoperable due to a common power source failure de-energizing three matrix power supplies.	A.1 Restore channel to OPERABLE status.	48 hours
B. One or more Functions with one Manual Trip or Initiation Logic channel inoperable.	B.1 Restore channel to OPERABLE status.	48 hours OR In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more Functions with two Initiation Logic channels or Manual Trip channels affecting the same trip leg inoperable.	C.1	Open at least one contact in the affected trip leg of both ESFAS Actuation Logics.	Immediately
	<u>AND</u>		
	C.2	Restore channels to OPERABLE status.	48 hours
D. One or more Functions with one Actuation Logic channel inoperable.	D.1	---NOTE--- One channel of Actuation Logic may be bypassed for up to 1 hour for Surveillances, provided the other channel is OPERABLE. ------	
		Restore channel to OPERABLE status.	48 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
E. Required Action and associated Completion Time of Conditions for Containment Spray Actuation Signal, Main Steam Isolation Signal or Auxiliary Feedwater Actuation Signal not met.	E.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	E.2	Be in MODE 4.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Conditions for Safety Injection Actuation Signal, Containment Isolation Actuation Signal, or Recirculation Actuation Signal not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	-------------------NOTE------------------- Testing of Actuation Logic shall include the verification of the proper operation of each initiation relay. -- Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel and Manual Trip channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2	-------------------NOTE------------------- Relays exempt from testing during operation shall be tested in accordance with the Surveillance Frequency Control Program. -- Perform a subgroup relay test of each Actuation Logic channel, which includes the de-energization of each subgroup relay and verification of the OPERABILITY of each subgroup relay.	In accordance with the Surveillance Frequency Control Program

Table 3.3.6-1 (page 1 of 1)
Engineered Safety Features Actuation System Logic and Manual Trip Applicability

FUNCTION	APPLICABLE MODES
1. Safety Injection Actuation Signal	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3,4
c. Actuation Logic	1,2,3,4
d. Manual Trip	1,2,3,4
2. Containment Isolation Actuation Signal	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3,4
c. Actuation Logic	1,2,3,4
d. Manual Trip	1,2,3,4
3. Recirculation Actuation Signal	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3,4
c. Actuation Logic	1,2,3,4
d. Manual Trip	1,2,3,4
4. Containment Spray Actuation Signal	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3
c. Actuation Logic	1,2,3
d. Manual Trip	1,2,3
5. Main Steam Isolation Signal[(a)]	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3
c. Actuation Logic	1,2,3
d. Manual Trip	1,2,3
6. Auxiliary Feedwater Actuation Signal SG #1 (AFAS-1)	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3
c. Actuation Logic	1,2,3
d. Manual Trip	1,2,3
7. Auxiliary Feedwater Actuation Signal SG #2 (AFAS-2)	
a. Matrix Logic	1,2,3
b. Initiation Logic	1,2,3
c. Actuation Logic	1,2,3
d. Manual Trip	1,2,3

(a) The MSIS Function is not required to be OPERABLE when all associated valves isolated by the MSIS Function are closed.

3.3 INSTRUMENTATION

3.3.7 Diesel Generator (DG) – Loss of Voltage Start (LOVS)

LCO 3.3.7 Four channels of Loss of Voltage Function and Degraded Voltage Function auto-initiation instrumentation per DG shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One LOVS channel per DG inoperable.	A.1 Place channel in bypass or trip.	1 hour
	<u>AND</u>	
	A.2 Restore channel to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Two LOVS channels per DG inoperable.	B.1	Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation.	1 hour
	<u>OR</u>		
	B.2	Place one channel in bypass and the other channel in trip.	1 hour
C. More than two LOVS channels per DG inoperable.	C.1	Restore all but two channels to OPERABLE status.	1 hour
D. Required Action and associated Completion Time not met.	D.1	Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - LOVS instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.3	Perform CHANNEL CALIBRATION with setpoint Allowable Values as follows: a. Degraded Voltage Function ≥ 3712 V and ≤ 3767 V with a two stage time delay Short stage time delay: ≥ 5.5 seconds and ≤ 8.5 seconds; and Long stage time delay: ≥ 31.0.seconds and ≤ 40.0 seconds; and b. Loss of Voltage Function ≥ 3240 V and ≤ 3300 V Time delay: ≥ 1.4 seconds and ≤ 2.3 seconds	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.8 Containment Purge Isolation Actuation Signal (CPIAS)

LCO 3.3.8 One CPIAS channel shall be OPERABLE.

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

---NOTE---
Only required when the penetration is not isolated by at least one closed automatic valve, closed manual valve, or blind flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CPIAS Manual Trip, Actuation Logic, or radiation monitor inoperable in MODES 1, 2, 3, and 4.	A.1 Place and maintain containment purge and exhaust valves in closed position.	Immediately
B. Required Action and associated Completion Time not met.	B.1 Enter applicable Conditions and Required Actions for affected valves of LCO 3.6.3 "Containment Isolation Valves" made inoperable by CPIAS instrumentation.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. CPIAS Manual Trip, Actuation Logic, or radiation monitor inoperable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment.	C.1 Place and maintain containment purge and exhaust valves in closed position.	Immediately
	<u>OR</u>	
	C.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	C.2.2 Suspend movement of irradiated fuel assemblies in containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform a CHANNEL CHECK on required radiation monitor channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2	Perform a CHANNEL FUNCTIONAL TEST on each required radiation monitor channel, and Verify the setpoint ≤ 2.5 mR/hr.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.3	-------------------NOTE-------------------- Surveillance of Actuation Logic shall include the verification of the proper operation of each actuation relay. --- Perform a CHANNEL FUNCTIONAL TEST on required CPIAS Actuation Logic channel.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.4	Perform a CHANNEL CALIBRATION on required radiation monitor channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.5	Perform CHANNEL FUNCTIONAL TEST on required CPIAS Manual Trip channel.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.9 Control Room Essential Filtration Actuation Signal (CREFAS)

LCO 3.3.9 One CREFAS channel shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CREFAS Manual Trip, Actuation Logic, or radiation monitor inoperable in MODE 1, 2, 3, or 4.	A.1 Place one CREFS train in essential filtration mode.	1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. CREFAS Manual Trip, Actuation Logic, or radiation monitor inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.	C.1	Place one CREFS train in essential filtration mode.	Immediately
	<u>OR</u>		
	C.2.1	Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>		
	C.2.2	Suspend positive reactivity additions.	Immediately
	<u>AND</u>		
	C.2.3	Suspend CORE ALTERATIONS.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform a CHANNEL CHECK on the required control room radiation monitor channel.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.9.2	Perform a CHANNEL FUNCTIONAL TEST on required CREFAS radiation monitor channel. Verify CREFAS high radiation setpoint is $\leq 2 \times 10^{-5}$ μCi/cc.	In accordance with the Surveillance Frequency Control Program
SR 3.3.9.3	-------------------NOTES------------------- 1. Surveillance of Actuation Logic shall include the verification of the proper operation of each Actuation relay. 2. Relays associated with plant equipment that cannot be operated during plant operation are required to be tested during each MODE 5 entry exceeding 24 hours unless tested within the previous 6 months. -- Perform a CHANNEL FUNCTIONAL TEST on required CREFAS Actuation Logic channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.9.4	Perform a CHANNEL CALIBRATION on required CREFAS radiation monitor channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.9.5	Perform a CHANNEL FUNCTIONAL TEST on required CREFAS Manual Trip channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.9.6	Verify that response time of required CREFAS channel is within limits.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.10 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.10 The PAM instrumentation for each Function in Table 3.3.10-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1	Enter the Condition referenced in Table 3.3.10-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.10-1.	E.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	E.2	Be in MODE 4.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.10-1.	F.1	Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----
These SRs apply to each PAM instrumentation Function in Table 3.3.10-1.

SURVEILLANCE		FREQUENCY
SR 3.3.10.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program
SR 3.3.10.2	-----NOTE----- Neutron detectors are excluded from the CHANNEL CALIBRATION. Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.10-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1. Logarithmic Neutron Flux	2	E
2. Reactor Coolant System Hot Leg Temperature	2 per loop	E
3. Reactor Coolant System Cold Leg Temperature	2 per loop	E
4. Reactor Coolant System Pressure (wide range)	2	E
5. Reactor Vessel Water Level	2[d]	F
6. Containment Sump Water Level (wide range)	2	E
7. Containment Pressure (wide range)	2	E
8. Containment Isolation Valve Position	2 per penetration flow path[a][b]	E
9. Containment Area Radiation (high range)	2	F
10. Pressurizer Level	2	E
11. Steam Generator Water Level (wide range)	2 per steam generator	E
12. Condensate Storage Tank Level	2	E
13. Core Exit Temperature – Quadrant 1	2[c]	E
14. Core Exit Temperature – Quadrant 2	2[c]	E
15. Core Exit Temperature – Quadrant 3	2[c]	E
16. Core Exit Temperature – Quadrant 4	2[c]	E
17. Steam Generator Pressure	2 per steam generator	E
18. Reactor Coolant System Subcooling Margin Monitoring	2	E
19. Reactor Coolant System Activity	2	F
20. High Pressure Safety Injection Cold Leg Flow	2 per loop	E
21. High Pressure Safety Injection Hot Leg Flow	2	E

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

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

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

(d) A channel is eight sensors in a probe. A channel is OPERABLE if four or more sensors, two or more in the upper four and two or more in the lower four, are OPERABLE.

3.3 INSTRUMENTATION

3.3.11 Remote Shutdown System

LCO 3.3.11 The Remote Shutdown System Instrumentation Functions and each Remote Shutdown System disconnect switch and control circuit 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 Functions to OPERABLE status.	30 days
B. One or more remote shutdown system disconnect switches or control circuits inoperable.	B.1 Restore required switch(s)/circuit(s) to OPERABLE status <u>OR</u> B.2 Issue procedure changes that identify alternate disconnect methods or control circuits	30 days 30 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.11.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program
SR 3.3.11.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	In accordance with the Surveillance Frequency Control Program
SR 3.3.11.3	------------------NOTE------------------ Neutron detectors are excluded from the CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION for each required instrumentation channel.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.12 Boron Dilution Alarm System (BDAS)

LCO 3.3.12 Two channels of BDAS shall be OPERABLE.

APPLICABILITY: MODES 3, 4, 5 and 6.

----------------------------NOTE------------------------
Required in MODE 3 within 1 hour after the neutron flux is within the startup range following a reactor shutdown.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required channel inoperable.	A.1 Determine the RCS boron concentration.	Immediately <u>AND</u> At the monitoring Frequency specified in the CORE OPERATING LIMITS REPORT
B. Two required channels inoperable.	B.1 Determine the RCS boron concentration by redundant methods.	Immediately <u>AND</u> At the monitoring frequency specified in the CORE OPERATING LIMITS REPORT

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1	Suspend all operations involving positive reactivity additions.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.12.1	-----NOTE----- Not required to be performed until 1 hour after neutron flux is within the startup range. -----	
	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.12.2	-----NOTE----- Not required to be performed until 72 hours after neutron flux is within the startup range. -----	
	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.12.3	-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----	
	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

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

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1 for RCS total flow rate,

MODES 1 and 2 for pressurizer pressure,

MODE 1 for RCS cold leg temperature (Tc).

MODE 2 with $K_{eff} \geq 1$ for RCS cold leg temperature (Tc).

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

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

b. THERMAL POWER step > 10% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS flow rate not within limit.	A.1 Restore RCS flow rate to within limit.	2 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Pressurizer pressure or RCS cold leg temperature not within limits.	C.1 Restore parameter(s) to within limits.	2 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure is within the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.2	Verify RCS cold leg temperature is within the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.3	---------------------------NOTE------------------------- Required to be met in MODE 1 with all RCPs running. --- Verify RCS total flow rate is greater than or equal to the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program

Figure Deleted

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2 Each RCS loop temperature (T_{cold}) shall be ≥ 545°F.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{cold} in one or more RCS loops not within limit.	A.1 Be in MODE 3.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{cold} in each loop ≥ 545°F.	------NOTE----- Only required if any RCS loop T_{cold} < 550°F. -------------- In accordance with the Surveillance Frequency Control Program AND Once within 30 minutes prior to reaching criticality

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; except when reactor vessel head is fully detensioned such that the RCS cannot be pressurized.

ACTIONS

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

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	-----------------NOTE------------------- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. -- Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates within 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 OPERABLE and in operation.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify each RCS loop is in operation.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops – MODE 3

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

---------------------------NOTE---------------------------
All reactor coolant pumps may be de-energized for ≤ 1 hour per 8 hour period, provided:

a. No operations are permitted that would cause reduction of the RCS boron concentration; and

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

APPLICABILITY: MODE 3.

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. No RCS loop OPERABLE. OR No RCS loop in operation.	C.1 Suspend all operations involving a reduction of RCS boron concentration. AND	Immediately
	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 required RCS loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.5.2	Verify secondary side water level in each steam generator ≥ 25%.	In accordance with the Surveillance Frequency Control Program
SR 3.4.5.3	Verify correct breaker alignment and indicated power available to the required pump that is not in operation.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops – MODE 4

LCO 3.4.6 Two loops or trains consisting of any combination of RCS loops and shutdown cooling (SDC) trains shall be OPERABLE and at least one loop or train shall be in operation.

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

1. All reactor coolant pumps (RCPs) and SDC pumps may be de-energized for ≤ 1 hour per 8 hour period, provided:

   a. No operations are permitted that would cause reduction of the RCS boron concentration; and

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

2. No RCP shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless the secondary side water temperature in each Steam Generator (SG) is < 100°F above each of the RCS cold leg temperatures.

3. No more than 2 RCPs may be in operation with RCS cold leg temperature ≤ 200°F. No more than 3 RCPs may be in operation with RCS cold leg temperature > 200°F but ≤ 500°F.

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RCS loop inoperable. AND Two SDC trains inoperable.	A.1 Initiate action to restore a second loop or train to OPERABLE status.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required SDC train inoperable. AND Two required RCS loops inoperable.	B.1 Be in MODE 5.	24 hours
C. No RCS loop or SDC train OPERABLE. OR No RCS loop or SDC train in operation.	C.1 Suspend all operations involving reduction of RCS boron concentration. AND C.2 Initiate action to restore one loop or train to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify one RCS loop or SDC train is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.6.2	Verify secondary side water level in required SG(s) is ≥ 25%.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.6.3	Verify correct breaker alignment and indicated power available to the required pump that is not in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.6.4	------------------NOTE------------------ Not required to be performed until 12 hours after entering MODE 4. -- Verify required SDC train locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops – MODE 5, Loops Filled

LCO 3.4.7 One Shutdown Cooling (SDC) train shall be OPERABLE and in operation, and either:

a. One additional SDC train shall be OPERABLE; or

b. The secondary side water level of each Steam Generator (SG) shall be ≥ 25%.

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

1. The SDC pump of the train in operation may be de-energized for ≤ 1 hour per 8 hour period provided:

   a. No operations are permitted that would cause reduction of the RCS boron concentration; and

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

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

3. No Reactor Coolant Pump (RCP) shall be started with one or more of the RCS cold leg temperatures less than or equal to the LTOP enable temperature specified in the PTLR unless the secondary side water temperature in each SG is < 100°F above each of the RCS cold leg temperatures.

4. No more than 2 RCPs may be in operation with RCS cold leg temperature ≤ 200°F. No more than 3 RCPs may be in operation with RCS cold leg temperature > 200°F but ≤ 500°F.

5. All SDC trains may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation.

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SDC train inoperable. AND Any SG with secondary side water level not within limit.	A.1 Initiate action to restore a second SDC train to OPERABLE status. OR A.2 Initiate action to restore SG secondary side water levels to within limits.	Immediately Immediately
B. Required SDC train inoperable. OR No SDC train in operation.	B.1 Suspend all operations involving reduction in RCS boron concentration. AND B.2 Initiate action to restore one SDC train to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify one SDC train is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.2	Verify required SG secondary side water level is ≥ 25%.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.3	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.4	------------------NOTE------------------ Not required to be performed until 12 hours after entering MODE 4. -- Verify required SDC train locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops – MODE 5, Loops Not Filled

LCO 3.4.8 Two Shutdown Cooling (SDC) trains shall be OPERABLE and one SDC train shall be in operation.

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

1. All SDC pumps may be de-energized for ≤ 1 hour per 8 hour period:
   a. The core outlet temperature is maintained > 10°F below saturation temperature;
   b. No operations are permitted that would cause a reduction of the RCS boron concentration; and
   c. No draining operations to further reduce the RCS water volume are permitted.
2. One SDC train may be inoperable for ≤ 2 hours for surveillance testing provided the other SDC train is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required SDC trains inoperable. OR No SDC train in operation.	B.1 Suspend all operations involving reduction of RCS boron concentration.	Immediately
	AND	
	B.2 Initiate action to restore one SDC train to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify one SDC train is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.8.2	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.8.3	Verify SDC train locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

a. Pressurizer water level ≥ 27% and ≤ 56%; and

b. Two groups of pressurizer heaters OPERABLE with the capacity of each group ≥ 125 kW.

APPLICABILITY: MODES 1, 2, and 3.

----------------------------NOTE----------------------------
The pressurizer water level 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. Pressurizer water level not within limit.	A.1 Be in MODE 3 with reactor trip breakers open. AND A.2 Be in MODE 4.	6 hours 12 hours
B. One required group of pressurizer heaters inoperable.	B.1 Restore required group of pressurizer heaters to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level is ≥ 27% and ≤ 56%	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2	Verify capacity of each required group of pressurizer heaters ≥ 125 kW.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves – Modes 1, 2 and 3

LCO 3.4.10 Four pressurizer safety valves shall be OPERABLE with lift settings ≥ 2450.25 psia and ≤ 2549.25 psia.

APPLICABILITY: MODES 1, 2, and 3,

NOTE

The lift settings are not required to be within LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 72 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---NOTES--- 1. Not applicable when pressurizer safety valve intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. --- One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes OR In accordance with the Risk Informed Completion Time Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met. OR Two or more pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	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 Safety Valves-MODE 4

LCO 3.4.11 One pressurizer safety valve shall be OPERABLE with a lift setting ≥ 2450.25 psia and ≤ 2549.25 psia.

APPLICABILITY: MODE 4 with all RCS cold leg temperatures greater than the LTOP enable temperature specified in the PTLR.

---------------------------NOTE---------------------------
The lift settings are not required to be within LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 72 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. All pressurizer safety valves inoperable.	A.1 Be in MODE 4 with one Shutdown Cooling System suction line relief valve in service. AND	Immediately
	A.2 Perform SR 3.4.11.2 and SR 3.4.11.3 for the required Shutdown Cooling System suction line relief valve to comply with Action A.1. AND	Immediately
	A.3 Be in MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	Verify the required 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
SR 3.4.11.2	------------------------NOTE------------------ Only required to be performed when a Shutdown Cooling System suction line relief valve is being used for overpressure protection. --- Verify the required Shutdown Cooling System suction line relief valve is aligned to provide overpressure protection for the RCS.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.3	Verify the required Shutdown Cooling System suction line relief valve is OPERABLE with the required setpoint.	In accordance with the INSERVICE TESTING PROGRAM

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Pressurizer Vents

LCO 3.4.12 Four pressurizer vent paths shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.
MODE 4 with RCS pressure ≥ 385 psia.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Two or three required pressurizer vent paths inoperable.	A.1 Restore required pressurizer vent paths to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. ----------NOTES---------- 1. Not applicable when last pressurizer vent path intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. -------------------------- All pressurizer vent paths inoperable.	B.1 Restore one pressurizer vent path to OPERABLE status.	6 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program

ACTIONS (CONTINUED)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time of Condition A, or B not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 4 with RCS pressure < 385 psia.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Perform a complete cycle of each Pressurizer Vent Valve.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.2	Verify flow through each pressurizer vent path.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 Low Temperature Overpressure Protection (LTOP) System

LCO 3.4.13 An LTOP System shall be OPERABLE consisting of:

a. Two OPERABLE Shutdown Cooling System suction line relief valves with lift settings ≤ 467 psig aligned to provide overpressure protection for the RCS; or

b. The RCS depressurized and an RCS vent of ≥ 16 square inches.

----------------------------NOTE----------------------------
No RCP shall be started unless the secondary side water temperature in each steam generator (SG) is ≤ 100°F above each of the RCS cold leg temperatures.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is less than or equal to the LTOP enable temperature specified in the PTLR.
MODE 5,
MODE 6 when the reactor vessel head is on.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required Shutdown Cooling System suction line relief valve inoperable in MODE 4.	A.1 Restore required Shutdown Cooling System suction line relief valve to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required Shutdown Cooling System suction line relief valve inoperable in MODE 5 or 6.	B.1 Restore required Shutdown Cooling System suction line relief valve to OPERABLE status.	24 hours
C. Two required Shutdown Cooling System suction line relief valves inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A, or B not met.	C.1 Depressurize RCS and establish RCS vent of ≥ 16 square inches.	8 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.13.1	Verify RCS Vent ≥ 16 square inches is open.	In accordance with the Surveillance Frequency Control Program
SR 3.4.13.2	Verify each Shutdown Cooling System suction line relief valve is aligned to provide overpressure protection for the RCS.	In accordance with the Surveillance Frequency Control Program
SR 3.4.13.3	Verify each Shutdown Cooling System suction line relief valve is OPERABLE with the required setpoint.	In accordance with the INSERVICE TESTING PROGRAM.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Operational LEAKAGE

LCO 3.4.14 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. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Pressure boundary LEAKAGE exists. <u>OR</u> Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	-------------------NOTES------------------ 1. Not required to be performed until 12 hours after establishment of steady state operation. 2. Not applicable to primary to secondary LEAKAGE -- Perform RCS water inventory balance.	In accordance with the Surveillance Frequency Control Program
SR 3.4.14.2	-------------------NOTE------------------- Not required to be performed until 12 hours after establishment of steady state operation. -- Verify primary to secondary LEAKAGE is ≤ 150 gallons per day through any one SG.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.15 Leakage from each RCS PIV shall be within limits.

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

ACTIONS

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

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

2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more flow paths with leakage from one or more RCS PIVs not within limit	------------NOTE------------ Each valve used to satisfy Required Action A.1 and required Action A.2 must have been verified to meet SR 3.4.15.1 and be on the RCS pressure boundary. ----------------------------	
	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	
	A.2 Restore RCS PIV to within limits	72 hours

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	-------------------NOTES------------------- 1. Not required to be performed in MODES 3 and 4. 2. Not required to be performed on the RCS PIVs located in the SDC flow path when in the shutdown cooling mode of operation. 3. RCS PIVs actuated during the performance of this Surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided. ---	
	Verify leakage from each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ 2230 psia and ≤ 2270 psia.	In accordance with the Surveillance Frequency Control Program AND 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, except for SDC PIVs AND (continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1 (continued)		Within 24 hours following valve actuation due to automatic or manual action or flow through the valve, except for SDC PIVs.
SR 3.4.15.2	Verify SDC System open permissive interlock prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ 410 psia.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Leakage Detection Instrumentation

LCO 3.4.16 Both of the following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment sump monitor; and

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump monitor inoperable.	A.1 Perform SR 3.4.14.1. AND A.2 Restore containment sump monitor to OPERABLE status.	Once per 24 hours 30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required containment atmosphere radioactivity monitor inoperable.	B.1.1 Analyze grab samples of the containment atmosphere. OR	Once per 24 hours
	B.1.2 Perform SR 3.4.14.1. AND	Once per 24 hours
	B.2 Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND	6 hours
	C.2 Be in MODE 5.	36 hours
D. All required monitors inoperable.	D.1 Enter LCO 3.0.3	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.16.1 Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.16.2 Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.16.3	Perform CHANNEL CALIBRATION of the required containment sump monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.16.4	Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 RCS Specific Activity

LCO 3.4.17 RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 specific activity shall be within limits.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 not within limit.	------------NOTE----------- LCO 3.0.4.c is applicable. --------------------------	
	A.1 Verify DOSE EQUIVALENT I-131 ≤ 60 μCi/gm.	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. DOSE EQUIVALENT XE-133 not within limit.	------------NOTE----------- LCO 3.0.4.c is applicable. --------------------------	
	B.1 Restore DOSE EQUIVALENT XE-133 to within limit.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR DOSE EQUIVALENT I-131 > 60 μCi/gm.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.17.1 Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity ≤ 550 μCi/gm.	In accordance with the Surveillance Frequency Control Program
SR 3.4.17.2 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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.18 Steam Generator (SG) Tube Integrity

LCO 3.4.18 SG tube integrity shall be maintained.

AND

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.18.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program.
SR 3.4.18.2	Verify that each inspected SG tube that satisfies the tube repair 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 Safety Injection Tanks (SITs) - Operating

LCO 3.5.1 Four SITs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3 and 4 with pressurizer pressure ≥ 1837 psia.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SIT inoperable due to boron concentration not within limits.	A.1 Restore SIT to OPERABLE status.	72 hours
B. One SIT inoperable for reasons other than Condition A.	B.1 Restore SIT to OPERABLE status.	10 days
C. -----------NOTES----------- 1. Not applicable when the second or a subsequent SIT intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ------------------------------- Two or more SITs inoperable for reasons other than Condition A.	C.1 Restore all but one SIT to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Reduce pressurizer pressure to < 1837 psia.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each SIT isolation valve is fully open.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	Verify borated water volume in each SIT is ≥ 1750 cubic feet and ≤ 1950 cubic feet.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify nitrogen cover pressure in each SIT is ≥ 600 psig and ≤ 625 psig.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.4	Verify boron concentration in each SIT is ≥ 2300 ppm and ≤ 4400 ppm.	In accordance with the Surveillance Frequency Control Program AND -----NOTE------ Only required to be performed for affected SIT --------------- Once within 6 hours, whenever a SIT is drained to maintain the contained borated water level within the limits of SR 3.5.1.2.
SR 3.5.1.5	Verify power is removed from each SIT isolation valve operator.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 Safety Injection Tanks (SITs) - Shutdown

LCO 3.5.2 Four SITs shall be OPERABLE with a borated water volume > 908 cubic feet and < 2000 cubic feet;

OR

Three SITS shall be OPERABLE with a borated water volume > 1361 cubic feet and < 2000 cubic feet.

APPLICABILITY: MODES 3 and 4 with pressurizer pressure < 1837 psia.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required SIT inoperable due to boron concentration not within limits.	A.1 Restore required SIT to OPERABLE status.	72 hours
B. One required SIT inoperable for reasons other than Condition A.	B.1 Restore required SIT to OPERABLE status.	10 Days
C. Inoperability of the required SIT was discovered but not restored while in ITS 3.5.1, "SITs Operating" <u>OR</u> Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 5.	24 hours
D. Two or more required SITs inoperable.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify each required SIT isolation valve is fully open when pressurizer pressure is ≥ 430 psia.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify borated water volume in each required SIT is: a. For four OPERABLE SITs, > 908 cubic feet and < 2000 cubic feet. <u>OR</u> b. For three OPERABLE SITs, > 1361 cubic feet and < 2000 cubic feet.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify nitrogen cover pressure in each required SIT is ≥ 260 psig and ≤ 625 psig.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify boron concentration in each required SIT is ≥ 2300 ppm and ≤ 4400 ppm.	In accordance with the Surveillance Frequency Control Program AND -----NOTE------ Only required to be performed for affected SIT --------------- Once within 6 hours, whenever a required SIT is drained to maintain the contained borated water level within the limits of SR 3.5.2.2.
SR 3.5.2.5	Verify power is removed from each required SIT isolation valve operator when pressurizer pressure is ≥ 1500 psia.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS — Operating

LCO 3.5.3 Two ECCS trains shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with pressurizer pressure ≥ 1837 psia or with RCS T_c ≥ 485°F.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One LPSI subsystem inoperable.	A.1	Restore subsystem to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program
B. One or more trains inoperable for reasons other than Condition A. AND At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	B.1	Restore train(s) to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Reduce pressurizer pressure to < 1837 psia.	12 hours
	AND		
	C.3	Reduce RCS T_c to < 485°F.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
	----------NOTE---------- Not required to be met for system vent flow paths opened under administrative control.	
SR 3.5.3.1	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 3.5.3.2	Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.3	Verify each ECCS pump develops the required differential pressure at the flow test point.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.3.4	Verify each ECCS automatic valve that is not locked, sealed, or otherwise secured in position, in the flow path actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.5	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.6	Verify each LPSI pump stops on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.3.7	Verify, for each ECCS throttle valve listed below, each position stop is in the correct position. LPSI System Valve Number: SIB-UV 615, SIB-UV 625, SIA-UV 635, SIA-UV 645, SIA-HV 306, SIB-HV 307 Hot Leg Injection Valve Numbers: SIC-HV 321, SID-HV 331	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 ECCS - Shutdown

LCO 3.5.4 One High Pressure Safety Injection (HPSI) train shall be OPERABLE.

APPLICABILITY: MODE 3 with pressurizer pressure < 1837 psia and with RCS T_c < 485°F.
MODE 4.

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable to ECCS High Pressure Safety Injection subsystem when entering MODE 4.

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	The following SRs are applicable: SR 3.5.3.1 SR 3.5.3.5 SR 3.5.3.2 SR 3.5.3.7 SR 3.5.3.3 SR 3.5.3.4	In accordance with applicable SRs

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.5 Refueling Water Tank (RWT)

LCO 3.5.5 The RWT shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RWT boron concentration not within limits. OR RWT borated water temperature not within limits.	A.1 Restore RWT to OPERABLE status.	8 hours
B. ----------NOTES---------- 1. Not applicable when RWT is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ------------------------------ RWT inoperable for reasons other than Condition A.	B.1 Restore RWT to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program
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 3.5.5.1	------------------NOTE------------------ Only required to be performed when ambient air temperature is < 60°F or > 120°F. --- Verify RWT borated water temperature is ≥ 60°F and ≤ 120°F.	In accordance with the Surveillance Frequency Control Program
SR 3.5.5.2	Verify RWT borated water volume is ≥ minimum required RWT volume in Figure 3.5.5-1.	In accordance with the Surveillance Frequency Control Program
SR 3.5.5.3	Verify RWT boron concentration is ≥ 4000 ppm and ≤ 4400 ppm.	In accordance with the Surveillance Frequency Control Program

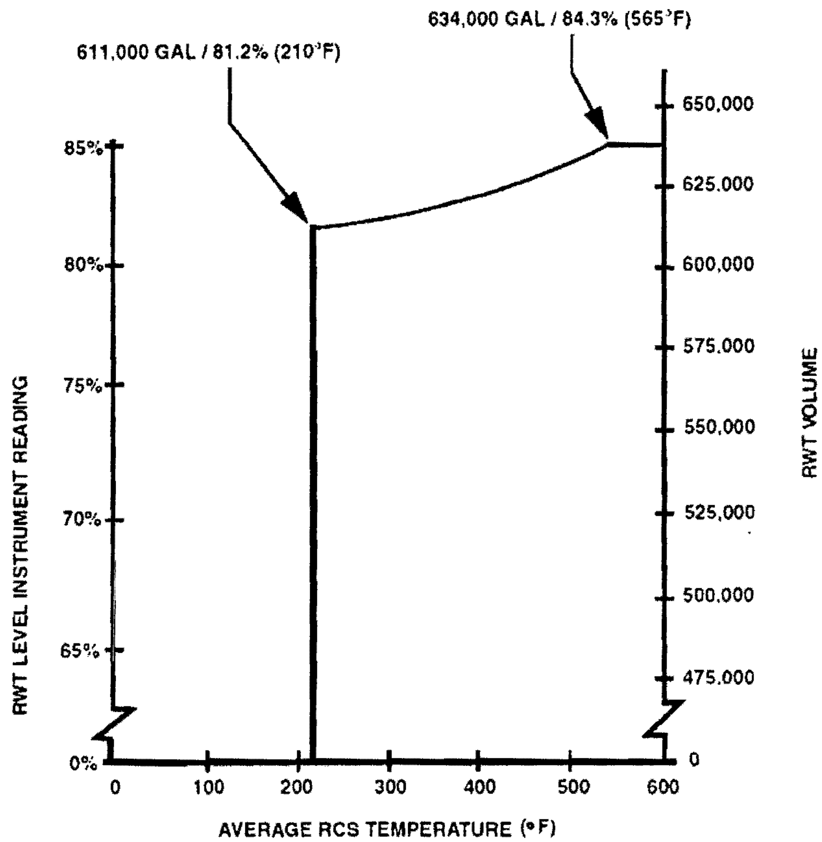

FIGURE 3.5.5-1
Minimum Required RWT Volume

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.6 Trisodium Phosphate (TSP)

LCO 3.5.6 The TSP baskets shall contain ≥ 524 ft^3 of active TSP.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. TSP not within limits.	A.1 Restore TSP to within limits.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.6.1	Verify the TSP baskets contain ≥ 524 ft^3 of granular anhydrous trisodium phosphate.	In accordance with the Surveillance Frequency Control Program
SR 3.5.6.2	Verify that a sample from the TSP baskets provides adequate pH adjustment of borated water.	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. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1	Perform required visual examinations and leakage rate testing except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.1.2	Verify containment structural integrity in accordance with the Containment Tendon Surveillance Program.	In accordance with the Containment Tendon Surveillance 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 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. ----------------------------	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.1 Verify the OPERABLE door is closed in the affected air lock.	1 hour
	AND	
	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. ----------------------------	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.1	Verify an OPERABLE door is closed in the affected air lock.	1 hour
	AND		
	B.2	Lock an OPERABLE door closed in the affected air lock.	24 hours
	AND		
	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 OR In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 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 required containment isolation valve shall be OPERABLE.

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

ACTIONS

---NOTES---

1. Penetration flow paths except for 42 inch purge valve penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for system(s) made inoperable by containment isolation valves.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when leakage results in exceeding the overall containment leakage rate acceptance criteria.
5. A 42 inch refueling purge valve is not a required containment isolation valve when its flow path is isolated with a blind flange tested in accordance with SR 3.6.1.1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---NOTE--- Only applicable to penetration flow paths with two required containment isolation valves. --- One or more penetration flow paths with one required containment isolation valve inoperable except for purge valve leakage not within limit.	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 OR In accordance with the Risk Informed Completion Time Program (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 ---------NOTE-------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------------- Verify the affected penetration flow path is isolated.	 Once per 31 days following isolation for isolation devices outside 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. ---------NOTES--------- - 1. Only applicable to penetration flow paths with two required containment isolation valves. 2. RICT is not applicable when the second containment isolation valve is intentionally made inoperable. 3. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ---------------------------	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 <u>OR</u> In accordance with the Risk Informed Completion Time Program (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued) One or more penetration flow paths with two required containment isolation valves inoperable except for purge valve leakage not within limit.		
C. ————NOTE———— Only applicable to penetration flow paths with only one required containment isolation valve and a closed system. ———————————— One or more penetration flow paths with one required 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. AND C.2 ————NOTE———— Isolation devices in high radiation areas may be verified by use of administrative means. ———————————— Verify the affected penetration flow path is isolated.	4 hours OR In accordance with the Risk Informed Completion Time Program Once per 31 days following isolation

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. ————NOTES———— 1. RICT is not applicable when the second containment purge valve is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable when there is a loss of function: parts b, c.2, c.3, d, e, f, g, and h. ———————————— One or more penetration flow paths with one or more required containment purge valves not within purge valve leakage limits.	D.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve with resilient seals, or blind flange. AND	24 hours OR In accordance with the Risk Informed Completion Time Program (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	D.2	---------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------------------------	
		Verify the affected penetration flow path is isolated.	Once per 31 days following isolation for isolation devices outside 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 3.6.3.6 for the resilient seal purge valves closed to comply with Required Action D.1.	Once per 92 days following isolation
E. Required Action and associated Completion Time not met.	E.1	Be in MODE 3.	6 hours
	AND		
	E.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Verify each required 42 inch purge valve is sealed closed except for one purge valve in a penetration flow path while in Condition D of this LCO.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.2	Verify each 8 inch purge valve is closed except when the 8 inch purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.3	-----NOTE----- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ---------- Verify each containment isolation manual valve and blind flange that is located 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.4	-------------------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 3.6.3.5	Verify the isolation time of each required automatic power operated containment isolation valve is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.3.6	Perform leakage rate testing for required containment purge valves with resilient seals.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Within 92 days after opening the valve
SR 3.6.3.7	Verify each required automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be ≥ -0.3 psig and ≤ +2.5 psig.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature

LCO 3.6.5 Containment average air temperature shall be ≤ 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 System

LCO 3.6.6 Two containment spray trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.
MODE 4 when RCS pressure is ≥ 385 psia

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4 with RCS pressure < 385 psia.	6 hours 84 hours
C. Two containment spray trains inoperable.	C.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
	------------------NOTE------------------ Not required to be met for system vent flow paths opened under administrative control. --	
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	Verify the containment spray piping is full of water to the 113 ft level in the containment spray header.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.3	Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.4	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 3.6.6.5	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 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.7	Verify each spray nozzle is unobstructed.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.7 Containment Sump

LCO 3.6.7 Two containment sumps shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment sumps inoperable due to containment accident generated and transported debris exceeding the analyzed limits.	A.1 Initiate action to mitigate containment accident generated and transported debris.	Immediately
	AND	
	A.2 Perform SR 3.4.14.1.	Once per 24 hours
	AND	
	A.3 Restore the containment sumps to OPERABLE status.	90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more containment sumps inoperable for reasons other than Condition A.	B.1 -----------NOTES----------- 1. Enter applicable Conditions and Required Actions of LCO 3.5.3, "ECCS – Operating," and LCO 3.5.4, "ECCS – Shutdown," for emergency core cooling trains made inoperable by the containment sumps. 2. Enter applicable Conditions and Required Actions of LCO 3.6.6, "Containment Spray System," for containment spray trains made inoperable by the containment sumps. --------------------------------	
	Restore the containment sumps to OPERABLE status.	72 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify, by visual inspection, the containment sumps do not show structural damage, abnormal corrosion, or debris blockage.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 The MSSVs shall be OPERABLE as specified in Table 3.7.1-1 and Table 3.7.1-2.

APPLICABILITY: MODES 1, 2, and 3

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One to four required MSSVs per steam generator inoperable in MODES 1 or 2.	A.1 Reduce power to less than or equal to the applicable % RTP listed in Table 3.7.1-1. AND A.2 Reduce the variable overpower trip – high setpoint in accordance with Table 3.7.1-1.	4 hours 36 hours
B. Required Actions and associated Completion Times of Condition A not met. OR Five to eight required MSSVs per steam generator inoperable in MODES 1 or 2.	B.1 Be in MODE 3.	6 hours

(Continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 4.	6 hours
D. More than eight required MSSVs per steam generator inoperable.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	---------------------------NOTE--------------------------- Not required to be performed prior to entry into MODE 3. --- Verify each required MSSV lift setpoint per Table 3.7.1-2 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)
Variable Overpower Trip Setpoint versus
OPERABLE Main Steam Safety Valves

MINIMUM NUMBER OF MSSVs PER STEAM GENERATOR REQUIRED OPERABLE	NUMBER OF INOPERABLE MSSVs PER STEAM GENERATOR	MAXIMUM POWER (% RTP) or HIGHEST MODE	MAXIMUM ALLOWABLE VARIABLE OVERPOWER TRIP SETPOINT[(a)] (% RTP)
10	0	100.0	111.0
9	1	90.0	99.7
8	2	80.0	89.7
7	3	68.0	77.7
6	4	56.0	65.7
5	5	MODE 3	NA
4	6	MODE 3	NA
3	7	MODE 3	NA
2	8	MODE 3	NA

(a) The VOPT setpoint is not required to be reset in MODE 3.

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

VALVE NUMBER		LIFT SETTING (psig ± 3%)
Steam Generator #1	Steam Generator #2	
SGE PSV 572	SGE PSV 554	1250
SGE PSV 579	SGE PSV 561	1250
SGE PSV 573	SGE PSV 555	1290
SGE PSV 578	SGE PSV 560	1290
SGE PSV 574	SGE PSV 556	1315
SGE PSV 575	SGE PSV 557	1315
SGE PSV 576	SGE PSV 558	1315
SGE PSV 577	SGE PSV 559	1315
SGE PSV 691	SGE PSV 694	1315
SGE PSV 692	SGE PSV 695	1315

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

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

APPLICABILITY: MODE 1,
MODES 2, 3, and 4 except when all MSIVs are closed and deactivated.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV with a single actuator train inoperable.	A.1 Restore MSIV actuator train to OPERABLE status	7 days
B. Two MSIVs each with a single actuator train inoperable such that the inoperable trains are not in the same instrumentation train.	B.1 Restore one MSIV actuator train to OPERABLE status	72 hours
C. Two MSIVs each with a single actuator train inoperable and both inoperable actuator trains are in the same instrumentation train.	C.1 Restore one MSIV actuator train to OPERABLE status	48 hours
D. Two actuator trains for one MSIV inoperable.	D.1 Declare the affected MSIV inoperable.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Three or more MSIV actuator trains inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A, B, or C not met.	E.1 Declare each affected MSIV inoperable.	Immediately
F. One MSIV inoperable in MODE 1.	F.1 Restore MSIV to OPERABLE status.	4 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
G. ---------NOTES--------- 1. Not applicable when the second or a subsequent MSIV intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. --------------------------- Two or more MSIVs inoperable in MODE 1.	G.1 Restore all but one MSIV to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program
H. Required Action and Associated Completion Time of Condition F or G not met.	H.1 Be in MODE 2.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
I. ————NOTE———— Separate Condition entry is allowed for each MSIV. —————— One or more MSIVs inoperable in MODE 2, 3, or 4.	I.1	Close MSIV.	4 hours
	AND		
	I.2	Verify MSIV is closed.	Once per 7 days
J. Required Action and associated Completion Time of Condition I not met.	J.1	Be in MODE 3.	6 hours
	AND		
	J.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	————————NOTE———————— Not required to be performed prior to entry into MODE 3. —————————————— Verify closure time of each MSIV is within limits with each actuator train on an actual or simulated actuation signal.	In accordance with the INSERVICE TESTING PROGRAM

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs)

LCO 3.7.3 Four economizer MFIVs and four downcomer MFIVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4 except when MFIV is closed and deactivated or isolated by a closed and deactivated power operated valve.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MFIVs inoperable.	A.1 Restore MFIV(s) to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
	OR	
	A.2.1 Close or isolate inoperable MFIV(s).	72 hours
	AND	
	A.2.2 Verify inoperable MFIV(s) is closed or isolated.	Once per 7 days following isolation

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ——NOTES—— 1. RICT is not applicable when the second valve in the affected flow path is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ———————— Two valves in the same flow path inoperable.	B.1 Restore one valve to OPERABLE status. OR B.2.1 Isolate affected flow path. AND B.2.2 Verify inoperable MFIV(s) is closed or isolated.	8 hours OR In accordance with the Risk Informed Completion Time Program 8 hours Once per 7 days following isolation.
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 3.7.3.1	Verify the closure time of each MFIV is within limits on an actual or simulated actuation signal.	In accordance with the INSERVICE TESTING PROGRAM

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Dump Valves (ADVs)

LCO 3.7.4 Four ADV lines shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ------------NOTE------------ Separate Condition entry is allowed for each SG. ------------------------------ One required ADV line inoperable.	A.1 Restore ADV line to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. -----------NOTES----------- 1. Not applicable when the last ADV intentionally made inoperable resulting in loss of safety function. 2. The following Section 5.5.20 constraints are applicable when there is a loss of function: parts b, c.2, c.3, d, e, f, g, and h. ------------------------------ Two or more ADV lines inoperable with both ADV lines inoperable on one or more SGs.	B.1 Restore one ADV line to OPERABLE status on each SG.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 4 without reliance on steam generator for heat removal.	24 hours

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

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

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

ACTIONS

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

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ———NOTES——— 1. Not applicable when second AFW train intentionally made inoperable resulting in loss of safety function. 2. The following Section 5.5.20 constraints are applicable when there is a loss of function: parts b, c.2, c.3, d, e, f, g, and h. ——————— Two AFW trains inoperable in MODE 1, 2, or 3.	C.1 Restore at least one AFW train to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program
D. Required Action and associated Completion Time of Condition A, B or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	6 hours 12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Three AFW trains inoperable in MODE 1, 2, or 3.	E.1 ———NOTE——— LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ——— Initiate action to restore one AFW train to OPERABLE status.	Immediately
F. Required AFW train inoperable in MODE 4.	F.1 ———NOTE——— LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ——— Initiate action to restore one AFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each AFW manual, power operated, and automatic valve in each water flow path and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.2	-----------------------------NOTE------------------------- Not required to be performed for the turbine driven AFW pump until 72 hours after reaching 532°F in the RCS. -- Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.5.3	---------------------------NOTES------------------------- 1. Not required to be performed for the turbine driven AFW pump until 72 hours after reaching 532°F in the RCS. 2. Not applicable in MODE 4 when steam generator is relied upon for heat removal. -- Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.5.4	——NOTES—— 1. Not required to be performed for the turbine driven AFW pump until 72 hours after reaching 532°F in the RCS. 2. Not applicable in MODE 4 when steam generator is relied upon for heat removal. —————— Verify each AFW pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.5	Verify the proper alignment of the required AFW flow paths by verifying flow from the condensate storage tank to each steam generator.	Prior to entering MODE 2 whenever unit has been in MODE 5 or 6 for > 30 days

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST level shall be ≥ 29.5 ft.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CST level not within limit.	A.1 Verify OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND	
	A.2 Restore CST level to within limit	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 CST level is ≥ 29.5 ft.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.7 Essential Cooling Water (EW) System

LCO 3.7.7 Two EW trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One EW train inoperable.	A.1 ——NOTE—— Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops — MODE 4" for shutdown cooling made inoperable by EW. ———— Restore EW train to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. ——NOTES—— 1. Not applicable when second EW train intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ———— Two EW trains inoperable.	B.1 Restore at least one EW train to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program

ACTION (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	---NOTE--- Isolation of EW flow to individual components does not render the EW System inoperable. ------ Verify each EW 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 EW 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 EW pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.8 Essential Spray Pond System (ESPS)

LCO 3.7.8 Two ESPS trains shall be OPERABLE.

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

ACTIONS

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

ACTION (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ——NOTES—— 1. Not applicable when second ESPS train intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ———— Two ESPS trains inoperable.	B.1 Restore at least one ESPS train to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program
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 3.7.8.1	——Notes—— Isolation of ESPS flow to individual components does not render ESPS inoperable. ———— Verify each ESPS manual and power operated 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 ESPS 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.	6 hours
	AND	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify the usable water depth of each essential spray pond is ≥ 12 feet.	In accordance with the Surveillance Frequency Control Program
SR 3.7.9.2	Verify water temperature of each essential spray pond is ≤ 89°F.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.10 Essential Chilled Water (EC) System

LCO 3.7.10 Two EC trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One EC train inoperable.	A.1 Restore EC train to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. ———NOTES——— 1. Not applicable when second EC train intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ———————— Two EC trains inoperable.	B.1 Restore at least one EC train to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify each EC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.10.2	Verify the proper actuation of each EC System component on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.11 Control Room Essential Filtration System (CREFS)

LCO 3.7.11 Two CREFS trains shall be OPERABLE.

----------------------------NOTE----------------------------
The Control Room Envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREFS train inoperable for reasons other than Condition B.	A.1 Restore CREFS train to OPERABLE status.	7 days
B. One or more CREFS 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 will not exceed radiological limits and that CRE occupants are protected from smoke and potential chemical hazards.	24 hours
	<u>AND</u>	
	B.3 Restore CRE boundary to OPERABLE status.	90 days

(continued)

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. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6.	D.1 Place OPERABLE CREFS train in essential filtration mode.	Immediately
E. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	E.1 Place OPERABLE CREFS Train in essential filtration mode. OR E.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
F. Two CREFS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies. OR One or more CREFS trains inoperable due to inoperable CRE boundary in MODE 5 or 6, or during movement of irradiated fuel assemblies.	F.1 Suspend CORE ALTERATIONS. AND F.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
G. Two CREFS trains inoperable in MODE 1, 2, 3, or 4, for reasons other than Condition B.	G.1 Enter LCO 3.0.3.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Operate each CREFS train for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.11.2	Perform required CREFS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.11.3	Verify each CREFS train actuates on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.11.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program.

3.7 PLANT SYSTEMS

3.7.12 Control Room Emergency Air Temperature Control System (CREATCS)

LCO 3.7.12 Two CREATCS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

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 of Condition A not met in MODE 1, 2, 3, or 4.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours
C. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6.	C.1 Place OPERABLE CREATCS train in operation.	Immediately
D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	D.1 Place OPERABLE CREATCS train in operation OR D.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Two CREATCS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.	E.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	E.2	Suspend movement of irradiated fuel assemblies.	Immediately
F. Two CREATCS trains inoperable in MODE 1, 2, 3, or 4.	F.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	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

3.7.13 Engineered Safety Feature (ESF) Pump Room Exhaust Air Cleanup System (PREACS)

LCO 3.7.13 Two ESF PREACS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESF PREACS train inoperable.	A.1 Restore ESF PREACS train 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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.13.1 Operate each ESF PREACS train for ≥ 15 minutes	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.13.2	Perform required ESF PREACS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.13.3	Verify each ESF PREACS train actuates on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.13.4	Verify one ESF PREACS train can maintain a measurable negative pressure relative to atmospheric pressure during operation at a flowrate of 6000 cfm ±10%.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.14 Fuel Storage Pool Water Level

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.15 Fuel Storage Pool Boron Concentration

LCO 3.7.15 The fuel storage pool boron concentration shall be $\geq$ 2150 ppm.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool boron concentration not within limit.	------------NOTE------------ LCO 3.0.3 is not applicable. -----------------------------	
	A.1 Suspend movement of fuel assemblies in the fuel storage pool.	Immediately
	<u>AND</u>	
	A.2 Initiate action to restore fuel storage pool boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

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

3.7 PLANT SYSTEMS

3.7.16 Secondary Specific Activity

LCO 3.7.16 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 3.7.16.1 Verify the specific activity of the secondary coolant is within limit.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.17 Spent Fuel Assembly Storage

LCO 3.7.17 The combination of initial enrichment, burnup, and decay time of each fuel assembly shall be in compliance with the requirements specified in Tables 3.7.17-1 through 3.7.17-5.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.17.1	Verify by administrative means the initial enrichment, burnup, and decay time of the fuel assembly is in accordance with Tables 3.7.17-1 through 3.7.17-5, Figure 3.7.17-1, and Specification 4.3.1.1.	Prior to storing the fuel assembly in the fuel storage pool.

Table 3.7.17-1

Fuel Regions Ranked by Reactivity	
Fuel Region 1	Highest Reactivity (See Note 2)
Fuel Region 2	
Fuel Region 3	
Fuel Region 4	
Fuel Region 5	
Fuel Region 6	Lowest Reactivity

Notes:

1. Fuel Regions are defined by assembly average burnup, initial enrichment[1] and decay time as provided by Table 3.7.17-2 through Table 3.7.17-5.
2. Fuel Regions are ranked in order of decreasing reactivity, e.g., Fuel Region 2 is less reactive than Fuel Region 1, etc.
3. Fuel Region 1 contains fuel with an initial maximum radially averaged enrichment up to 4.65 wt% ^{235}U. No burnup is required.
4. Fuel Region 2 contains fuel with an initial maximum radially averaged enrichment up to 4.65 wt% ^{235}U with at least 16.0 GWd/MTU of burnup.
5. Fuel Regions 3 through 6 are determined from the minimum burnup (BU) equation and coefficients provided in Tables 3.7.17-2 through 3.7.17-5.
6. Assembly storage is controlled through the storage arrays defined in Figure 3.7.17-1.
7. Each storage cell in an array can only be populated with assemblies of the Fuel Region defined in the array definition or a lower reactivity Fuel Region.

[1]Initial Enrichment is the nominal ^{235}U enrichment of the central zone region of fuel, excluding axial blankets, prior to reduction in ^{235}U content due to fuel depletion. If the fuel assembly contains axial regions of different ^{235}U enrichment values, such as axial blankets, the maximum initial enrichment value is to be utilized.

Table 3.7.17-2

Fuel Region 3: Burnup Requirement Coefficients				
Decay Time (yr.)	**Coefficients**			
	A_1	**A_2**	**A_3**	**A_4**
0	-0.8100	6.5551	-2.9050	-21.0499
5	-0.9373	7.6381	-6.0246	-18.0299
10	-0.8706	6.8181	-3.1913	-21.0299
15	-0.7646	5.6311	0.7657	-25.1599
20	-0.7233	5.1651	2.3084	-26.7499

Notes:

1. Relevant uncertainties are explicitly included in the criticality analysis. For instance, no additional allowance for burnup uncertainty or enrichment uncertainty is required. For a fuel assembly to meet the requirements of a Fuel Region, the assembly burnup must exceed the “minimum burnup” (GWd/MTU) given by the curve fit for the assembly “decay time” and “initial enrichment.” The specific minimum burnup (BU) required for each fuel assembly is calculated from the following equation:

$$BU = A_1 * En^3 + A_2 * En^2 + A_3 * En + A_4$$

2. Initial enrichment, En, is the maximum radial average ^{235}U enrichment. Any En value between 2.50 wt% ^{235}U and 4.65 wt% ^{235}U may be used. Burnup credit is not required for an En below 2.50 wt% ^{235}U.

3. It is acceptable to linearly interpolate between calculated BU limits based on decay time.

4. The 20-year coefficients must be used to calculate the minimum BU for an assembly with a decay time of greater than 20 years.

Table 3.7.17-3

Fuel Region 4: Burnup Requirement Coefficients				
Decay Time (yr.)	**Coefficients**			
	A_1	**A_2**	**A_3**	**A_4**
0	0.0333	-2.1141	27.4985	-41.8258
5	-0.2105	0.2472	19.7919	-34.2641
10	0.0542	-2.5298	28.0953	-41.7092
15	0.3010	-5.0718	35.6966	-48.5494
20	0.4829	-6.9436	41.3118	-53.6182

Notes:

1. Relevant uncertainties are explicitly included in the criticality analysis. For instance, no additional allowance for burnup uncertainty or enrichment uncertainty is required. For a fuel assembly to meet the requirements of a Fuel Region, the assembly burnup must exceed the "minimum burnup" (GWd/MTU) given by the curve fit for the assembly "decay time" and "initial enrichment." The specific minimum burnup (BU) required for each fuel assembly is calculated from the following equation:

$$BU = A_1 * En^3 + A_2 * En^2 + A_3 * En + A_4$$

2. Initial enrichment, En, is the maximum radial average ^{235}U enrichment. Any En value between 1.75 wt% ^{235}U and 4.65 wt% ^{235}U may be used. Burnup credit is not required for an En below 1.75 wt% ^{235}U.

3. It is acceptable to linearly interpolate between calculated BU limits based on decay time.

4. The 20-year coefficients must be used to calculate the minimum BU for an assembly with a decay time of greater than 20 years.

Table 3.7.17-4

Fuel Region 5: Burnup Requirement Coefficients

Decay Time (yr.)	Coefficients			
	A_1	A_2	A_3	A_4
0	0.1586	-3.0177	28.7074	-39.8636
5	-0.2756	1.3433	14.5578	-26.4388
10	-0.2897	1.3218	14.6176	-26.4160
15	-0.0736	-0.9107	21.2118	-32.1887
20	0.1078	-2.7684	26.6911	-36.9873

Notes:

1. Relevant uncertainties are explicitly included in the criticality analysis. For instance, no additional allowance for burnup uncertainty or enrichment uncertainty is required. For a fuel assembly to meet the requirements of a Fuel Region, the assembly burnup must exceed the "minimum burnup" (GWd/MTU) given by the curve fit for the assembly "decay time" and "initial enrichment." The specific minimum burnup (BU) required for each fuel assembly is calculated from the following equation:

$$BU = A_1 * En^3 + A_2 * En^2 + A_3 * En + A_4$$

2. Initial enrichment, En, is the maximum radial average ^{235}U enrichment. Any En value between 1.65 wt% ^{235}U and 4.65 wt% ^{235}U may be used. Burnup credit is not required for an En below 1.65 wt% ^{235}U.

3. It is acceptable to linearly interpolate between calculated BU limits based on decay time.

4. The 20-year coefficients must be used to calculate the minimum BU for an assembly with a decay time of greater than 20 years.

Table 3.7.17-5

Fuel Region 6: Burnup Requirement Coefficients				
Decay Time (yr.)	**Coefficients**			
	A_1	**A_2**	**A_3**	**A_4**
0	0.4890	-6.7447	42.7619	-49.3143
5	0.5360	-6.9115	41.1003	-46.6977
10	0.4779	-6.1841	37.6389	-43.0309
15	0.4575	-5.8844	35.8656	-41.0274
20	0.3426	-4.7050	31.8126	-37.2800

Notes:

1. Relevant uncertainties are explicitly included in the criticality analysis. For instance, no additional allowance for burnup uncertainty or enrichment uncertainty is required. For a fuel assembly to meet the requirements of a Fuel Region, the assembly burnup must exceed the "minimum burnup" (GWd/MTU) given by the curve fit for the assembly "decay time" and "initial enrichment." The specific minimum burnup (BU) required for each fuel assembly is calculated from the following equation:

$$BU = A_1 * En^3 + A_2 * En^2 + A_3 * En + A_4$$

2. Initial enrichment, En, is the maximum radial average ^{235}U enrichment. Any En value between 1.45 wt% ^{235}U and 4.65 wt% ^{235}U may be used. Burnup credit is not required for an En below 1.45 wt% ^{235}U.

3. It is acceptable to linearly interpolate between calculated BU limits based on decay time.

4. The 20-year coefficients must be used to calculate the minimum BU for an assembly with a decay time of greater than 20 years.

Figure 3.7.17-1
Allowable Storage Arrays

Array A Two Region 1 assemblies (1) checkerboarded with two blocked cells (X). The Region 1 assemblies are each in a cell with a stainless steel L-insert. No NETCO-SNAP-IN® inserts are credited.	**1**	**X**
	X	**1**
Array B Two Region 1 assemblies (1) checkerboarded with two cells containing trash cans (TC). The Region 1 assemblies are each in a cell with a stainless steel L-insert. Every cell without a stainless steel L-insert must contain a NETCO-SNAP-IN® insert.	**1**	**TC**
	TC	**1**
Array C Two Region 2 assemblies (2) checkerboarded with one Region 3 assembly (3) and one blocked cell (X). The Region 2 assemblies are each in a cell with a stainless steel L-insert. The Region 3 assembly is in a cell containing a NETCO-SNAP-IN® insert.	**2**	**X**
	3	**2**
Array D One Region 2 assembly (2) checkerboarded with three Region 4 assemblies (4). The Region 2 assembly and the diagonally located Region 4 assembly are each in a storage cell with a stainless steel L-insert. The two storage cells without a stainless steel L-insert contain a NETCO-SNAP-IN® insert.	**2**	**4**
	4	**4**
Array E Four Region 5 assemblies (5). Two storage cells contain a stainless steel L-insert. One cell contains a NETCO-SNAP-IN® insert. One storage cell contains no insert.	**5**	**5**
	5	**5**
Array F Four Region 6 assemblies (6). Two storage cells contain a stainless steel L-insert. The other two cells contain no inserts.	**6**	**6**
	6	**6**

Notes:
1. The shaded locations indicate cells which contain a stainless steel L-insert.
2. A blocked cell (X) contains a blocking device.
3. NETCO-SNAP-IN® inserts must be oriented in the same direction as the stainless steel L-inserts.
4. NETCO-SNAP-IN® inserts are only located in cells without a stainless steel L-insert.
5. Any cell containing a fuel assembly or a TC may instead be an empty (water-filled) cell in all storage arrays.
6. Any storage array location designated for a fuel assembly may be replaced with non-fissile material.
7. Interface requirements: Each cell is part of up to four 2x2 arrays and each cell must simultaneously meet the requirements of all those arrays of which it is a part.

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources – Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

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

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

c. Automatic load sequencers for Train A and Train B.

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

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required offsite circuit inoperable.	A.1	Perform SR 3.8.1.1 for required OPERABLE offsite circuit.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u>		
	A.2	Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)
	<u>AND</u>		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	Restore required offsite circuit to OPERABLE status.	72 hours OR In accordance with the Risk Informed Completion Time Program
B. One DG inoperable.	B.1	Perform SR 3.8.1.1 for the OPERABLE required offsite circuit(s).	1 hour AND Once per 8 hours thereafter
	AND		
	B.2	Declare required feature(s) supported by the inoperable DG inoperable when its 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 DG is not inoperable due to common cause failure.	24 hours
	OR		
	B.3.2	Perform SR 3.8.1.2 for OPERABLE DG.	24 hours
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.4	Restore DG to OPERABLE status.	10 days <u>OR</u> In accordance with the Risk Informed Completion Time Program
C. Two required offsite circuits inoperable.	C.1	Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	<u>AND</u>		
	C.2	Restore one required offsite circuit to OPERABLE status.	24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One required offsite circuit inoperable. AND One DG inoperable.	------------NOTE------------ Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – Operating," when Condition D is entered with no AC power source to a train. ------------------------------	
	D.1 Restore required offsite circuits to OPERABLE status.	12 hours OR In accordance with the Risk Informed Completion Time Program
	OR	
	D.2 Restore DG to OPERABLE status.	12 hours OR In accordance with the Risk Informed Completion Time Program
------------NOTES------------ 1. Not applicable when second DG intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ------------------------------ E. Two DGs inoperable.	E.1 Restore one DG to OPERABLE status.	2 hours OR In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One automatic load sequencer inoperable.	F.1 Restore automatic load sequencer to OPERABLE status. AND	24 hours OR In accordance with the Risk Informed Completion Time Program
	F.2 Declare required feature(s) supported by the inoperable sequencer inoperable when its redundant required feature(s) is inoperable.	4 hours from discovery of Condition F concurrent with inoperability of redundant required feature(s)

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. ------------NOTES----------- 1. Not applicable when the third or a subsequent required AC source intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. --------------------------------- Three or more required AC sources inoperable.	G.1 Restore required AC source(s) to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program
H. Required Action and Associated Completion Time of Condition A, B, C, D, E, F, or G not met.	H.1 Be in MODE 3. <u>AND</u> H.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	——NOTES—— 1. Performance of SR 3.8.1.7 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met. 4. The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error. ———— Verify each DG starts from standby condition and achieves steady state voltage ≥ 4000 V and ≤ 4377.2 V, and frequency ≥ 59.7 Hz and ≤ 60.7 Hz.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	——NOTES—— 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2 or SR 3.8.1.7. —————— Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes at a load ≥ 4950 kW and ≤ 5500 kW.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4	Verify each day tank contains ≥ 550 gal of fuel oil (minimum level of 2.75 feet).	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.5	Check for and remove accumulated water from each day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.6	Verify the fuel oil transfer system operates to automatically transfer fuel oil from the storage tank to the day tank.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	------------------NOTE------------------ 1. All DG starts may be preceded by an engine prelube period followed by a warmup period prior to loading. 2. The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error. -- Verify each DG starts from standby condition and achieves a. In ≤ 10 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 4000 V and ≤ 4377.2 V, and frequency ≥ 59.7 Hz and ≤ 60.7 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.8	------------------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. -- Verify manual transfer of AC power sources from the normal offsite circuit to each alternate offsite circuit.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	------NOTE------ This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. ------------ Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 64.5 Hz; b. Within 3 seconds following load rejection, the voltage is ≥ 3740 V and ≤ 4580 V; and c. Within 3 seconds following load rejection, the frequency is ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.10	------NOTE------ If performed with the DG synchronized with offsite power, it shall be performed at a power factor of ≤ 0.89. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. ------------ Verify each DG does not trip, and voltage is maintained ≤ 6200 V during and following a load rejection of ≥ 4950 kW and ≤ 5500 kW.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	-----NOTE----- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. 3. Momentary voltage and frequency transients induced by load changes do not invalidate this test. 4. The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error. ---------- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts and; 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through automatic load sequencer, 3. maintains steady state voltage ≥ 4000 V and ≤ 4377.2 V, 4. maintains steady state frequency ≥ 59.7 Hz and ≤ 60.7 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	---NOTES--- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. 3. The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error. --- Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal (without a loss of offsite power) each DG auto-starts and: a. In ≤ 10 seconds, achieves voltage ≥ 3740 V and frequency ≥ 58.8 Hz; b. Achieves steady state voltage ≥ 4000 and ≤ 4377.2 V and frequency ≥ 59.7 Hz and ≤ 60.7 Hz; c. Operates for ≥ 5 minutes on standby (running unloaded); d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are energized (auto-connected through the automatic load sequencer) from the offsite power system.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	Verify each DG automatic trip is bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ESF actuation signal except: a. Engine overspeed; b. Generator differential current; c. Engine low lube oil pressure; and d. Manual emergency stop trip.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	---NOTES--- 1. Momentary transients outside the load range do not invalidate this test. 2. If performed with the DG synchronized with offsite power, it shall be performed at a power factor of ≤ 0.89. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. 3. All DG starts may be preceded by an engine prelube period followed by a warmup period prior to loading. 4. DG loading may include gradual loading as recommended by the manufacturer. --- Verify each DG operates for ≥ 24 hours: a. For ≥ 22 hours loaded ≥ 4950 kW and ≤ 5500 kW; and b. For the remaining hours (≥ 2) of the test loaded ≥ 5775 kW and ≤ 6050 kW.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	——NOTES—— 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG, loaded ≥ 4950 kW and ≤ 5500 kW, has operated ≥ 2 hours or until temperatures have stabilized. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. 3. The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error. ———— Verify each DG starts and achieves a. In ≤ 10 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 4000 V and ≤ 4377.2 V, and frequency ≥ 59.7 Hz and ≤ 60.7 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.16	——NOTE—— This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. ———— Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.17	------NOTE------ This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. ------------ Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ESF actuation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.18	------NOTE------ This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. ------------ Verify interval between each sequenced load block is within ± 1 second of design interval for each automatic load sequencer.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.19	——NOTES—— 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. 3. The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error. ———— Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through load sequencer, 3. achieves steady state voltage ≥ 4000 V and ≤ 4377.2 V, 4. achieves steady state frequency ≥ 59.7 Hz and ≤ 60.7 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	 In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.20	-----NOTES----- 1. All DG starts may be preceded by an engine prelube period. 2. The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error. ---------- Verify, when started simultaneously, each DG achieves a. In ≤ 10 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 4000 V and ≤ 4377.2 V, and frequency ≥ 59.7 Hz and ≤ 60.7 Hz.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources – Shutdown

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

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

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

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

ACTIONS

-----------------------------------NOTE-----------------------------------
In MODES 1, 2, 3, and 4, Required Actions A.2.3 and B.3 are 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>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	-------------------NOTE------------------- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.6, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, and SR 3.8.1.18. --	
	For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources – Operating," except SR 3.8.1.8, SR 3.8.1.12, SR 3.8.1.17, SR 3.8.1.19 and SR 3.8.1.20, 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 diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more DGs with fuel level less than a 7 day supply and greater than a 6 day supply in storage tank.	A.1	Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory less than a 7 day supply and greater than a 6 day supply.	B.1	Restore lube oil inventory to within limits.	48 hours
C. One or more DGs with stored fuel oil total particulates not within limits.	C.1	Restore fuel oil total particulates to within limits.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with a required starting air receiver pressure < 230 psig and ≥ 185 psig.	E.1 Restore starting air receiver pressure to ≥ 230 psig.	48 hours
F. Required Action and associated Completion Time not met. <u>OR</u> ----------NOTE--------- Should the required starting air receiver pressure momentarily drop to <185 psig while starting the DG on one air receiver only, then entry into Condition F is not required. ---------------------- One or more DGs with diesel fuel oil, lube oil, or starting air subsystem inoperable for reasons other than Condition A, B, C, D, or E.	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains ≥ a 7 day supply of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify lubricating oil inventory is ≥ a 7 day supply.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG starting air receiver pressure is ≥ 230 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 A and Train B DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One battery charger on one subsystem inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. <u>AND</u> A.2 Verify battery float current ≤ 2 amps. <u>AND</u> A.3 Restore battery charger to OPERABLE status.	2 hours Once per 12 hours 72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. One DC electrical power subsystem inoperable for reasons other than Condition A.	B.1 Restore DC electrical power subsystem to OPERABLE status.	2 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ————NOTES———— 1. Not applicable when second DC electrical power subsystem intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ———————— Two DC electrical power subsystems inoperable.	C.1 Restore at least one DC electrical power subsystem to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 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	Deleted	
SR 3.8.4.3	Deleted	
SR 3.8.4.4	Deleted	
SR 3.8.4.5	Deleted	
SR 3.8.4.6	Verify each battery charger supplies ≥ 400 amps for Batteries A and B and ≥ 300 amps for Batteries C and D at greater than or equal to the minimum established float voltage for ≥ 8 hours. <u>OR</u> Verify each 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.7	------------NOTES------------ 1. The modified performance discharge test in SR 3.8.6.9 may be performed in lieu of SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. --------------------------------- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.8	Deleted	

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources – Shutdown

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

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

ACTIONS

------------------------------------NOTE------------------------------------
In MODES 1, 2, 3, and 4, Required Action A.2.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required DC electrical power subsystem inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>	
	A.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	------------------NOTE------------------ The following SRs are not required to be performed: SR 3.8.4.6 and SR 3.8.4.7. -- For DC sources required to be OPERABLE, the following SRs are applicable: SR 3.8.4.1 SR 3.8.4.6 SR 3.8.4.7	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

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

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One battery with one or more battery cells float voltage ≤ 2.07 V.	A.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	A.2 Perform SR 3.8.6.4.	2 hours
	<u>AND</u>	
	A.3 Restore affected cell voltage > 2.07 V.	24 hours
B. One battery with float current > 2 amps.	B.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	B.2 Restore float current to ≤ 2 amps.	12 hours

(continued)

ACTIONS (continued)

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

(continued)

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 battery with one or more battery cells float voltage ≤ 2.07 V and float current > 2 amps.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Deleted	
SR 3.8.6.2	Deleted	
SR 3.8.6.3	Deleted	
SR 3.8.6.4	-------------------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 3.8.6.5	Verify each battery pilot cell float voltage is > 2.07 V.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.6	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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.7	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 3.8.6.8	Verify each battery connected cell float voltage is > 2.07 V.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.9	------------------NOTE------------------ This Surveillance shall not be performed in MODE 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR. -- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or modified performance discharge test.	In accordance with the Surveillance Frequency Control Program AND 12 months when battery shows degradation, or has reached 85% of the expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters — Operating

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

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

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

a. The associated AC vital instrument bus is energized from its Class 1E constant voltage source regulator; and

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required inverter inoperable.	A.1 ------------NOTE----------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any vital instrument bus de-energized. ------------------------------	
	Restore inverter to OPERABLE status.	7 days <u>OR</u> In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ————NOTES———— 1. Not applicable when the second or a subsequent required inverter intentionally made inoperable resulting in loss of safety function. 2. The following Section 5.5.20 constraints are applicable when there is a loss of function: parts b, c.2, c.3, d, e, f, g, and h. ———————————— Two or more required inverters inoperable.	B.1 Restore all but one inverter to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program
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 3.8.7.1	Verify correct inverter voltage, frequency, and alignment to required AC vital instrument buses.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters – Shutdown

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

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

ACTIONS

-----------------------------------NOTE-----------------------------------
In MODES 1, 2, 3, and 4, Required Action A.2.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

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

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems — Operating

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One AC electrical power distribution subsystem inoperable.	A.1 Restore AC electrical power distribution subsystem to OPERABLE status.	8 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. One AC vital instrument bus electrical power distribution subsystem inoperable.	B.1 Restore AC vital instrument bus electrical power distribution subsystem to OPERABLE status.	2 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
C. One DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem to OPERABLE status.	2 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. ————NOTES———— 1. Not applicable when the second or a subsequent electrical power distribution subsystem intentionally made inoperable resulting in loss of safety function. 2. The following Section 5.5.20 constraints are applicable when there is a loss of function: parts b, c.2, c.3, d, e, f, g, and h. ————————————— Two or more electrical power distribution subsystems inoperable.	D.1 Restore electrical power distribution subsystem(s) to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems – Shutdown

LCO 3.8.10 The necessary portion of AC, DC, and AC vital instrument 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---
In MODES 1, 2, 3, and 4, Required Action A.2.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital instrument bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND	
		(continued)

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

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

APPLICABILITY: MODE 6.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.2 Nuclear Instrumentation

LCO 3.9.2 Two startup range monitors (SRMs) shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

--------------------------NOTE---------------------
Enter applicable Conditions and Required Actions of LCO 3.3.12, "Boron Dilution Alarm System (BDAS)" for BDAS made inoperable by SRMs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required SRM inoperable.	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend positive reactivity additions.	Immediately
B. Two required SRMs inoperable.	B.1 Initiate action to restore one SRM to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.3 Containment Penetrations

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

a. The equipment hatch closed and held in place by four bolts, or if open, capable of being closed:

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

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

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

2. capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

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

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2 Suspend movement of irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify each required containment penetration is in the required status.	In accordance with the Surveillance Frequency Control Program
SR 3.9.3.2	Verify each required containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.9.3.3	Verify the capability to close the equipment hatch, if open	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.4 Shutdown Cooling (SDC) and Coolant Circulation – High Water Level

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

---------------------------NOTE---------------------------
The required SDC loop may be removed from operation for ≤ 1 hour per 8 hour period, provided no operations are permitted that would cause reduction of the Reactor Coolant System 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. SDC loop requirements not met.	A.1	Suspend operations involving a reduction in reactor coolant boron concentration.	Immediately
	AND		
	A.2	Suspend loading irradiated fuel assemblies in the core.	Immediately
	AND		
	A.3	Initiate action to satisfy SDC loop requirements.	Immediately
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.4.1 Verify one SDC loop is operable and in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.9.4.2 Verify required SDC loop locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.5 Shutdown Cooling (SDC) and Coolant Circulation – Low Water Level

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

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

1. The required SDC loop may be removed from operation for ≤ 1 hour per 8 hour period, provided no operations are permitted that would cause reduction of the Reactor Coolant System boron concentration.
2. One required SDC loop may be inoperable for up to 2 hours for surveillance testing, provided the other SDC 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. One SDC loop inoperable.	A.1 Initiate action to restore SDC 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 SDC loop OPERABLE or in operation.	B.1 Suspend operations involving a reduction in reactor coolant boron concentration.	Immediately
	AND	
	B.2 Initiate action to restore one SDC loop to OPERABLE status and to operation.	Immediately
	AND	
	B.3 Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify required SDC loops are OPERABLE and one SDC loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.9.5.3	Verify required SDC loop locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.6 Refueling Water Level-Fuel Assemblies

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

APPLICABILITY: During movement of fuel assemblies within containment when either the fuel assemblies being moved or the fuel assemblies seated within the reactor vessel are irradiated.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.7 Refueling Water Level-CEAs

LCO 3.9.7 Refueling water level shall be maintained ≥ 23 ft above the top of irradiated fuel assemblies seated within the reactor vessel.

APPLICABILITY: During movement of CEAs within the reactor vessel, when the fuel assemblies seated within the reactor vessel are irradiated.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refueling water level not within limit.	A.1 Suspend movement of CEAs within the reactor vessel.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify refueling water level is ≥ 23 ft above the top of irradiated fuel assemblies seated within the reactor vessel.	In accordance with the Surveillance Frequency Control Program

4.0 DESIGN FEATURES

4.1 Site Location

The Palo Verde Nuclear Generating Station is located in Maricopa County, Arizona, approximately 50 miles west of the Phoenix metropolitan area.

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain 241 fuel assemblies.

a. Each assembly shall consist of a matrix of fuel rods with an NRC approved cladding material with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. Each unit-specific COLR shall contain an identification of the fuel types and cladding material in the reactor, and the associated COLR methodologies.

b. A limited number of lead test assemblies not meeting 4.2.1.a may be placed in nonlimiting core regions. Each unit-specific COLR shall contain an identification of any lead test assemblies in the reactor.

4.2.2 Control Element Assemblies

The reactor core shall contain 76 full strength and 13 part strength control element assemblies (CEAs).

The control section for the full strength CEAs shall be either boron carbide with Alloy 625 cladding, or a combination of silver-indium-cadmium and boron carbide with Alloy 625 cladding.

The control section for the part strength CEAs shall be solid Alloy 625 slugs with Alloy 625 cladding.

(continued)

4.0 DESIGN FEATURES (continued)

4.3 Fuel Storage

4.3.1 Criticality

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

a. Fuel assemblies having a maximum radially averaged U-235 enrichment of 4.65 weight percent;

b. k_{eff} < 1.0 if fully flooded with unborated water, which includes an allowance for biases and uncertainties as described in Section 9.1 of the UFSAR;

c. $k_{eff} \leq 0.95$ if fully flooded with water borated to 1600 ppm, which includes an allowance for biases and uncertainties as described in Section 9.1 of the UFSAR.

d. A nominal 9.5 inch center-to-center distance between adjacent storage cell locations.

e. Fuel assemblies are classified in Fuel Regions 1-6 as shown in Tables 3.7.17-1 through 3.7.17-5.

(continued)

4.0 DESIGN FEATURES (continued)

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

a. Fuel assemblies having a maximum radially averaged U-235 enrichment of 4.65 weight percent;

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

c. $k_{eff} \leq 0.98$ if moderated by aqueous foam, which includes an allowance for biases and uncertainties as described in Section 9.1 of the UFSAR; and

d. A nominal 18 inch (east-west) and 31 inch (north-south) 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 elevation 137 feet - 6 inches.

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 1329 fuel assemblies.

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

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

The Department Leader, Operations or his designee shall approve, prior to implementation, each proposed test, experiment or modification to systems or equipment that affect nuclear safety.

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

5.0 ADMINISTRATIVE CONTROLS

5.2 Organization

5.2.1 Onsite and Offsite Organizations

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

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

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

5.2.2 Unit Staff

The unit staff organization shall include the following:

a. A non-licensed operator shall be assigned to each reactor containing fuel and an additional non-licensed operator

(continued)

5.2 Organization

5.2.2 Unit Staff (continued)

shall be assigned for each control room from which a reactor is operating in MODES 1, 2, 3, or 4.

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

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

d. The Operations Department Leader or Operations Supervisor shall hold an SRO license.

e. The Shift Technical Advisor (STA) shall provide advisory technical support to the Shift Manager in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit. In addition, the STA shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift.

5.0 ADMINISTRATIVE CONTROLS

5.3 Unit Staff Qualifications

5.3.1 Each member of the unit staff with the exception of operator license applicants, shall meet or exceed the minimum qualifications of Regulatory Guide 1.8, September 1975 and ANSI/ANS 3.1-1978, except the Director, Site Radiation Protection shall meet or exceed the qualification of Regulatory Guide 1.8, September 1975, and the Shift Technical Advisor shall have a bachelor's degree or equivalent in a scientific or engineering discipline with specific training in plant design and plant operating characteristics, including transients and accidents.

5.3.2 The education and experience eligibility requirements for operator license applicants, and changes thereto, shall be those previously reviewed and approved by the NRC, specifically those referenced in letter 102-04930-GRO/TNW/RJR, dated April 25, 2003.

5.3.3 For the purpose of 10 CFR 55.4, a licensed senior reactor operation (SRO) and a licensed reactor operator (RO) are those individuals who, in addition to meeting the requirements of TS 5.3.2, 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;

d. Fire Protection Program implementation; and

e. All programs specified in Specification 5.5.

f. Modification of core protection calculator (CPC) addressable constants. These procedures shall include provisions to ensure that sufficient margin is maintained in CPC type I addressable constants to avoid excessive operator interaction with CPCs during reactor operation.

Modifications to the CPC software (including changes of algorithms and fuel cycle specific data) shall be performed in accordance with the most recent version of the "Software Program Manual for Common Q Systems," CE-CES-195, which has been determined to be applicable to the facility. Additions or deletions to CPC addressable constants or changes to addressable constant software limit values shall not be implemented without prior NRC approval.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

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

5.5.1 Offsite Dose Calculation Manual (ODCM)

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

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

Licensee initiated changes to the ODCM:

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

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

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

b. Shall become effective after the approval of the Director, Radiation Protection; and

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of

(continued)

5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

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.

5.5.2 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 recirculation portion of the high pressure injection system, the shutdown cooling portion of the low pressure safety injection system, and the containment spray system. The program shall include the following:

a. Preventive maintenance and periodic visual inspection requirements; and

b. Integrated leak test requirements for each system at refueling cycle intervals or less.

5.5.3 Deleted

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program

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

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

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

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

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

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

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

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

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;

   1. For noble gases: less than or equal to a dose rate of 500 mrems/yr to the total body and less than or equal to a dose rate of 3000 mrems/yr to the skin, and

   2. For iodine-131, iodine-133, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: less than or equal to a dose rate of 1500 mrems/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.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the UFSAR Section 3.9.1.1 cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Pre-Stressed Concrete Containment Tendon Surveillance Program

This program provides controls for monitoring any tendon degradation in pre-stressed concrete containments, including effectiveness of its corrosion protection medium, to ensure containment structural integrity. The program shall include baseline measurements prior to initial operations. The Tendon Surveillance Program, inspection frequencies, and acceptance criteria shall be in accordance with ASME Code Section XI, Subsection IWL of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10 CFR 50.55a, except where an exemption or relief has been authorized by the NRC.

The provisions of SR 3.0.3 are applicable to the Tendon Surveillance Program inspection frequencies.

(continued)

5.5 Programs and Manuals (continued)

5.5.7 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel per the recommendations of regulatory position c.4.b of Regulatory Guide 1.14, Revision 0, October 1971.

5.5.8 Deleted

(continued)

5.5 Programs and Manuals (continued)

5.5.9 Steam Generator (SG) Program

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

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

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

   1. Structural integrity performance criterion: All in-service SG tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down and 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,

(continued)

5.5 Programs and Manuals (continued)

5.5.9 Steam Generator (SG) Program (continued)

shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 0.5 gpm per SG and 1 gpm through both SGs.

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.14, "RCS Operational LEAKAGE."

c. Provisions for SG tube repair 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 repair 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. An assessment of degradation 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 replacement.

2. Inspect 100% of the tubes at sequential periods of 144, 108, 72, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected.

(continued)

5.5 Programs and Manuals (continued)

5.5.9 Steam Generator (SG) Program (continued)

3. If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever is less). 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.

(continued)

5.5 Programs and Manuals (continued)

5.5.10 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking. 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 which shall include monitoring the discharge of the condensate pumps for evidence of condenser in leakage;

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.

5.5.11 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in Regulatory Guide 1.52, Revision 2, and in accordance with Regulatory Guide 1.52, Revision 2 and ANSI N510-1980 at the system flowrate specified below ± 10%.

a. Demonstrate for each of the ESF 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 N510-1980, at the system flowrate specified as follows ± 10%:

(continued)

5.5 Programs and Manuals (continued)

5.5.11 Ventilation Filter Testing Program (VFTP) (continued)

ESF Ventilation System	Flowrate
Control Room Essential Filtration System (CREFS)	28,600 CFM
Engineered Safety Feature (ESF) Pump Room Exhaust Air Cleanup System (PREACS)	6,000 CFM

b. Demonstrate for each of the ESF 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 N510-1980 at the system flowrate specified as follows ± 10%:

ESF Ventilation System	Flowrate
CREFS	28,600 CFM
ESF PREACS	6,000 CFM

c. Demonstrate for each of the ESF systems that a charcoal adsorber sample, when obtained in accordance with the application of Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, as described in Section 1.8 of the UFSAR, shows the methyl iodide penetration less than or equal to the value specified below, when tested in accordance with ASTM D3803-1989, at a temperature of 30°C and to the relative humidity specified as follows:

ESF Ventilation System	Penetration	RH
CREFS	≤ 2.5%	70%
ESF PREACS	≤ 2.5%	70%

(continued)

5.5 Programs and Manuals (continued)

5.5.11 Ventilation Filter Testing Program (VFTP) (continued)

d. For each of the ESF systems, demonstrate the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than or equal to the value specified below when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI N510-1980 at the system flowrate specified as follows ± 10%:

ESF Ventilation System	Delta P	Flowrate
CREFS	4.8 inches water gauge	28,600 CFM
ESF PREACS	5.2 inches water gauge	6,000 CFM

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

ESF Ventilation System	Wattage
ESF PREACS	> 19 kW

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

5.5.12 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides control for potentially explosive gas mixtures contained in the Waste Gas Holdup System, the quantity of radioactivity contained in gas storage tanks and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks. The gaseous radioactivity quantities shall be determined following the methodology in Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure". The liquid radwaste quantities shall be determined in accordance with Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures".

(continued)

5.5 Programs and Manuals (continued)

5.5.12 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 Holdup System and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion);

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

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

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

5.5.13 Diesel Fuel Oil Testing Program

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

(continued)

5.5 Programs and Manuals (continued)

5.5.13 Diesel Fuel Oil Testing Program (continued)

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

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

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

3. Water and sediment within limits when tested in accordance with ASTM D1796;

b. Other properties for ASTM 2D fuel oil are within limits within 31 days following sampling and addition to storage tanks; and

c. Total particulate concentration of the stored fuel oil is ≤ 10 mg/l when tested every 92 days in accordance with ASTM D-2276, Method A-2 or A-3.

5.5.14 Technical Specifications (TS) Bases Control Program

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

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

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

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

2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

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

(continued)

5.5 Programs and Manuals (continued)

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

d. Proposed changes that meet the criteria of Specification 5.5.14b 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).

5.5.15 Safety Function Determination Program (SFDP)

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

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

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

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, 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:

a. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or

(continued)

5.5 Programs and Manuals (continued)

5.5.15 Safety Function Determination Program (continued)

b. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or

c. A required system redundant to support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5.16 Containment Leakage Rate Testing Program

a. A program shall be established to implement 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 (TR) NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J," Revision 3-A, 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. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by ASME Code Section XI, Subsection IWL, except where relief has been authorized by the NRC. The containment concrete visual examination may be performed during either power operation, e.g., performed concurrently with other containment inspection-related activities such as tendon testing, or during a maintenance/refueling outage.

2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by ASME Code Section XI, Subsection IWE, except where relief has been authorized by the NRC.

(continued)

5.5 Programs and Manuals (continued)

5.5.16 Containment Leakage Rate Testing Program (continued)

b. The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 58.0 psig. The containment design pressure is 60 psig.

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be 0.1 % of containment air weight per day.

d. Leakage Rate acceptance criteria are:

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

   2. Air lock testing acceptance criteria are:

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

      b) For each door, leakage rate is $\leq 0.01\ L_a$ when pressurized to $\geq$ 14.5 psig.

e. The provisions of SR 3.0.2 do not apply to the test frequencies in the Containment Leakage Rate Testing Program.

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

(continued)

5.5 Programs and Manuals (continued)

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 Essential Filtration System (CREFS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem 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 in accordance with the testing methods and the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Determining Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation of one train of the CREFS, operating at the flow rate required by the VFTP, at a Frequency of 18 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the periodic assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences.

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

(continued)

5.5 Programs and Manuals (continued)

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

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

5.5.19 Battery Monitoring and Maintenance Program

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

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

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

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

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

(continued)

5.5 Programs and Manuals (continued)

5.5.19 Battery Monitoring and Maintenance Program (continued)

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

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

b. The program shall include the following provisions:

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

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

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

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

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

5.5 Programs and Manuals (continued)

5.5.20 Risk Informed Completion Time Program

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI 06-09 (Revision 0) – A, "Risk-Managed Technical Specifications (RMTS) Guidelines." The program shall include the following:

a. The RICT may not exceed 30 days;

b. A RICT may only be utilized in MODE 1 and 2.

c. When a RICT is being used, any plant configuration change within the scope of the Configuration Risk Management Program must be considered for the effect on the RICT.

   1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.

   2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

   3. Revising the RICT is not required if the plant configuration change would lower plant risk and would result in a longer RICT.

d. Use of a RICT is not permitted for voluntary entry into a configuration which represents a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE.

e. Use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE if one or more of the trains are considered "PRA functional" as defined in Section 2.3.1 of NEI 06-09 (Revision 0) - A. The RICT for these loss of function conditions may not exceed 24 hours.

f. Use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE if one or more trains are considered "PRA Functional" as defined in Section 2.3.1 of NEI 06-09 (Revision 0) - A. However, the following additional constraints shall be applied to the criteria for "PRA Functional."

5.5 Programs and Manuals (continued)

5.5.20 Risk Informed Completion Time Program (continued)

1. Any SSCs credited in the PRA Functionality determination shall be the same SSCs relied upon to perform the specified Technical Specifications safety function.

2. Design basis success criteria parameters shall be met for all design basis accident scenarios for establishing PRA Functionality, during a Technical Specifications loss of function condition, where a RICT is applied.

g. Upon entering a RICT for an emergent condition, the potential for a common cause (CC) failure must be addressed.

If there is a high degree of confidence, based on the evidence collected, that there is no CC failure mechanism that could affect the redundant components, the RICT calculation may use nominal CC factor probability.

If a high degree of confidence cannot be established that there is no CC failure that could affect the redundant components, the RICT shall account for the increased possibility of CC failure. Accounting for the increased possibility of CC failure shall be accomplished by one of two methods. If one of the two methods listed below is not used, the Technical Specifications front stop shall not be exceeded.

1. The RICT calculation shall be adjusted to numerically account for the increased possibility of CC failure, in accordance with RG 1.177, as specified in Section A-1.3.2.1 of Appendix A of the RG. Specifically, when a component fails, the CC failure probability for the remaining redundant components shall be increased to represent the conditional failure probability due to CC failure of these components, in order to account for the possibility the first failure was caused by a CC mechanism.

OR

2. Prior to exceeding the front stop, RMAs not already credited in the RICT calculation shall be implemented. These RMAs shall target the success of the redundant and/or diverse structures, systems, or components (SSC) of the failed SSC and, if possible, reduce the frequency of initiating events which call upon the function(s) performed by the failed SSC. Documentation of RMAs shall be available for NRC review.

h. A RICT entry is not permitted, or a RICT entry made shall be exited, for any condition involving a TS loss of Function if a PRA Functionality determination that reflects the plant configuration concludes that the LCO cannot be restored without placing the TS inoperable trains in an alignment which results in a loss of functional level PRA success criteria.

5.5 Programs and Manuals (continued)

5.5.21 Spent Fuel Storage Rack Neutron Absorber Monitoring Program

Certain storage cells in the spent fuel storage racks utilize neutron absorbing material that is credited in the spent fuel storage rack criticality safety analysis to ensure the limitations of Technical Specifications 3.7.17 and 4.3.1.1 are maintained.

In order to ensure the reliability of the neutron absorber material, a monitoring program is provided to confirm the assumptions in the spent fuel pool criticality safety analysis.

The Spent Fuel Storage Rack Neutron Absorber Monitoring Program shall require periodic inspection and monitoring of spent fuel pool test coupons and neutron absorber inserts on a performance-based frequency, not to exceed 10 years.

Test coupons shall be inspected as part of the monitoring program. These inspections shall include visual, B-10 areal density and corrosion rate.

Visual in-situ inspections of inserts shall also be part of the program to monitor for signs of degradation. In addition, an insert shall be removed periodically for visual inspection, thickness measurements, and determination of retention force.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

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

5.6.1 Deleted

5.6.2 Annual Radiological Environmental Operating Report

-------------------------------NOTE-------------------------------
A single submittal may be made for a multiple unit station. The submittal should combine sections common to all units at the station.

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

(continued)

5.6 Reporting Requirements (continued)

5.6.2 Annual Radiological Environmental Operating Report (continued)

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

5.6.3 Radioactive Effluent Release Report

--------------------------------NOTE--------------------------------
A single submittal may be made for a multiple unit station. The submittal should combine sections common to all units at the station; however, for units with separate radwaste system, the submittal shall specify the releases of radioactive material from each unit.

The Radioactive Effluent Release Report covering the operation of the unit shall be submitted 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 50, Appendix I, Section IV.B.1.

5.6.4 Deleted

(continued)

5.6 Reporting Requirements (continued)

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

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

1. Shutdown Margin - Reactor Trip Breakers Open for Specification 3.1.1.
2. Shutdown Margin - Reactor Trip Breakers Closed for Specification 3.1.2.
3. Moderator Temperature Coefficient BOL and EOL limits for Specification 3.1.4.
4. Boron Dilution Alarm System for Specification 3.3.12.
5. CEA Alignment for Specification 3.1.5.
6. Regulating CEA Insertion Limits for Specification 3.1.7.
7. Part Strength CEA Insertion Limits for Specification 3.1.8.
8. Linear Heat Rate for Specification 3.2.1.
9. Azimuthal Power Tilt - T_q for Specification 3.2.3.
10. DNBR for Specification 3.2.4.
11. Axial Shape Index for Specification 3.2.5.
12. RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits for Specification 3.4.1.
13. Boron Concentration (Mode 6) for Specification 3.9.1.
14. Fuel types and cladding material in the reactor for Specification 4.2.1.a and 4.2.1.b, and the associated COLR methodologies for Specification 4.2.1.a.

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

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

(continued)

5.6 Reporting Requirements (continued)

5.6.5 Core Operating Limits Report (COLR) (continued)

1. "CE Method for Control Element Assembly Ejection Analysis," CENPD-0190-A, (Methodology for Specification 3.1.7, Regulating CEA Insertion Limits).

2. "The ROCS and DIT Computer Codes for Nuclear Design," CENPD-266-P-A, [Methodology for Specifications 3.1.1, Shutdown Margin - Reactor Trip Breakers Open; 3.1.2, Shutdown Margin - Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient BOL and EOL limits; 3.1.7, Regulating CEA Insertion Limits and 3.9.1, Boron Concentration (Mode 6)].

3. "Safety Evaluation Report related to the Final Design of the Standard Nuclear Steam Supply Reference Systems CESSAR System 80, Docket No. STN 50-470, "NUREG-0852 (November 1981), Supplements No. 1 (March 1983), No. 2 (September 1983), No. 3 (December 1987) [Methodology for Specifications 3.1.2, Shutdown Margin - Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient BOL and EOL limits; 3.3.12, Boron Dilution Alarm System; 3.1.5, CEA Alignment; 3.1.7, Regulating CEA Insertion Limits; 3.1.8, Part Strength CEA Insertion Limits and 3.2.3, Azimuthal Power Tilt - T_q].

4. "Modified Statistical Combination of Uncertainties," CEN-356(V)-P-A and "System 80™ Inlet Flow Distribution," Supplement 1-P to Enclosure 1-P to LD-82-054, (Methodology for Specification 3.2.4, DNBR and 3.2.5 Axial Shape Index).

5. "Calculative Methods for the CE Large Break LOCA Evaluation Model," CENPD-132, (Methodology for Specification 3.2.1, Linear Heat Rate).

6. "Calculative Methods for the CE Small Break LOCA Evaluation Model," CENPD-137-P, (Methodology for Specification 3.2.1, Linear Heat Rate).

(continued)

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

7. Letter: O.D. Parr (NRC) to F. M. Stern (CE), dated June 13, 1975 (NRC Staff Review of the Combustion Engineering ECCS Evaluation Model). NRC approval for: 5.6.5.b.6.

8. Letter: K. Kniel (NRC) to A. E. Scherer (CE), dated September 27, 1977 (Evaluation of Topical Reports CENPD-133, Supplement 3-P and CENPD-137, Supplement 1-P). NRC approval for 5.6.5.b.6.

9. "Fuel Rod Maximum Allowable Pressure," CEN-372-P-A, (Methodology for Specification 3.2.1, Linear Heat Rate).

10. Letter: A. C. Thadani (NRC) to A. E. Scherer (CE), dated April 10, 1990, ("Acceptance for Reference CE Topical Report CEN-372-P"). NRC approval for 5.6.5.b.9.

11. "Arizona Public Service Company PWR Reactor Physics Methodology Using CASMO-4/SIMULATE-3," [Methodology for Specifications 3.1.1, Shutdown Margin - Reactor Trip Breakers Open; 3.1.2, Shutdown Margin - Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.1.7, Regulating CEA Insertion Limits and 3.9.1, Boron Concentration (Mode 6)].

12. "Technical Manual for the CENTS Code," CE-NPD 282-P-A, Volumes 1-3, [Methodology for Specifications 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.1.5, CEA Alignment; 3.1.7, Regulating CEA Insertion Limits; 3.1.8, Part Strength CEA Insertion Limits and 3.2.3, Azimuthal Power Tilt- T_q].

13. CENPD-404-P-A, "Implementation of ZIRLO™ Cladding Material in CE Nuclear Power Fuel Assembly Designs.

14. CENPD-188-A, "HERMITE, A Multi-Dimensional Space-Time Kinetics Code for PWR Transients." [Methodology for Specifications 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]

15. CENPD-161-P-A, "TORC Code, A Computer Code for Determining the Thermal Margin of a Reactor Core." [Methodology for Specifications 3.1.1, Shutdown Margin-Reactor Trip Breakers Open; 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.2.1, Linear Heat

(continued)

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]

16. CEN-160(S)-P, "CETOP-D Code Structures and Modeling Methods for San Onofre Nuclear Generating Station Units 2 and 3." NRC approval in "Safety Evaluation related to Palo Verde Nuclear Generating Station, Unit 2 (PVNGS-2) Issuance of Amendment on Replacement of Steam Generators and Uprated Power Operation, (September 29, 2003)." [Methodology for Specifications 3.1.1. Shutdown Margin-Reactor Trip Breakers Open; 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]

17. "Safety Evaluation related to Palo Verde Nuclear Generating Station, Unit 2 (PVNGS-2) Issuance of Amendment on Replacement of Steam Generators and Uprated Power Operation, (September 29, 2003) and "Safety Evaluation related to Palo Verde Nuclear Generating Station, Units 1, 2, and 3 - Issuance of Amendments Re: Replacement of Steam Generators and Uprated Power Operations and Associated Administrative Changes, (November 16, 2005)." [Methodology for Specifications 3.1.1, Shutdown Margin-Reactor Trip Breakers Open; 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.1.5, CEA Alignment; 3.1.7, Regulating CEA Insertion Limits; 3.1.8, Part Length or Part Strength CEA Insertion Limits; 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index; 3.3.12, Boron Dilution Alarm System (BDAS); and 3.9.1, Boron Concentration (Mode 6).]

18. CEN-310-P-A, "CPC Methodology Changes for the CPC Improvement Program." [Methodology for Specifications 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]

19. CENPD-183-A, "Loss of Flow, C-E Methods for Loss of Flow Analysis." [Methodology for Specifications 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]

(continued)

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

20. CENPD-382-P-A, "Methodology for Core Designs Containing Erbium Burnable Absorbers." [Methodology for Specifications 3.1.1, Shutdown Margin-Reactor Trip Breakers Open; 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; and 3.1.4, Moderator Temperature Coefficient.]

21. CEN-386-P-A, "Verification of the Acceptability of a 1-Pin Burnup Limit of 60 MWD/kgU for Combustion Engineering 16 x 16 PWR Fuel." [Methodology for Specifications 3.1.1, Shutdown Margin-Reactor Trip Breakers Open; 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; and 3.1.4, Moderator Temperature Coefficient.]

22. WCAP-16500-P-A, "CE 16x16 Next Generation Fuel Core Reference Report." [Methodology for Specifications 2.1.1, Reactor Core SLs; 3.2.4, DNBR]

23. WCAP-14565-P-A, "VIPRE-01 Modeling and Qualification for Pressurized Water Reactor Non-LOCA Thermal-Hydraulic Safety Analysis." [Methodology for Specifications 2.1.1, Reactor Core SLs; 3.2.4, DNBR]

24. CENPD-387-P-A, "ABB Critical Heat Flux Correlations for PWR Fuel." [Methodology for Specifications 2.1.1, Reactor Core SLs; 3.2.4, DNBR]

25. WCAP-16523-P-A, "Westinghouse Correlations WSSV and WSSV-T for Predicting Critical Heat Flux in Rod Bundles with Side-Supported Mixing Vanes." [Methodology for Specifications 2.1.1, Reactor Core SLs; 3.2.4, DNBR]

26. WCAP-16072-P-A, "Implementation of Zirconium Diboride Burnable Absorber Coatings in CE Nuclear Power Fuel Assembly Designs." [Methodology for Specifications 2.1.1, Reactor Core SLs; 3.2.4, DNBR]

27. EMF-2103P-A, "Realistic Large Break LOCA Methodology for Pressurized Water Reactors." [Methodology for Specification 3.2.1, Linear Heat Rate]

28. EMF-2328 (P)(A), "PWR Small Break LOCA Evaluation Model, S-RELAP5 Based." [Methodology for Specification 3.2.1, Linear Heat Rate]

29. BAW-10231P-A, "COPERNIC Fuel Rod Design Computer Code." [Methodology for Specification 3.2.1, Linear Heat Rate]

30. BAW-10241(P)(A), "BHTP DNB Correlation Applied with LYNXT." [Methodology for Specification 3.2.4, DNBR]

31. EPRI-NP-2511-CCM-A, "VIPRE-01: A Thermal-Hydraulic Analysis Code for Reactor Cores." [Methodology for Specification 3.2.4, DNBR]

(continued)

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

c. The core operating limits shall be determined assuming operation up to RATED THERMAL POWER such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any mid cycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 PAM Report

When a report is required by Condition B or F of LCO 3.3.10, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.7 Tendon Surveillance Report

Any abnormal degradation of the containment structure detected during the tests required by the Pre-Stressed Concrete Containment Tendon Surveillance Program shall be reported to the NRC within 30 days. The report shall include a description of the tendon condition, the condition of the concrete (especially at tendon anchorages), the inspection procedures, the tolerances on cracking, and the corrective action taken.

5.6.8 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.9, Steam Generator (SG) Program. The report shall include:

a. The scope of inspections performed on each SG.

b. Active 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 active degradation mechanism.

f. Total number and percentage of tubes plugged to date.

g. The results of condition monitoring, including the results of tube pulls and in-situ testing.

(continued)

5.6 Reporting Requirements (continued)

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

a. RCS pressure and temperature limits for heatup, 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 Technical Specifications (TSs):

   1. TS 3.4.3, RCS Pressure and Temperature (P/T) Limits;
   2. TS 3.4.6, RCS Loops - Mode 4;
   3. TS 3.4.7, RCS Loops - Mode 5 Loops Filled;
   4. TS 3.4.11, Pressurizer Safety Valves - Mode 4; and
   5. TS 3.4.13, Low Temperature Overpressure Protection (LTOP) System.

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 document:

   - CE NPSD-683-A, Revision 6, "Development of a RCS Pressure and Temperature Limits Report for the Removal of P-T Limits and LTOP Requirements from the Technical Specifications," April 2001.

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

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

5.7.1 In addition to the provisions of 10 CFR 20.1601, the following controls provide an alternate method for controlling access to high radiation areas as provided by paragraph 20.1601(c) of 10 CFR part 20. High radiation areas, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but ≤ 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., Radiation Protection Technicians) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

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

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by radiation protection supervision, or as designated in the RWP.

(continued)

5.7 High Radiation Area

5.7.2 In addition to the requirements of Specification 5.7.1, areas accessible to personnel with radiation levels such that an individual could receive in 1 hour a dose greater than 1000 mrem shall be provided with locked or continuously guarded doors to prevent unauthorized entry and the keys shall be maintained under the administrative control of the Shift Manager on duty or radiation protection supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP that shall specify the dose rate levels in the immediate work areas and the maximum allowable stay times for individuals in those areas. In lieu of the stay time specification of the RWP, direct or remote (such as closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed within the area.

5.7.3 For individual high radiation areas accessible to personnel with radiation levels such that an individual could receive in 1 hour a dose in excess of 1000 mrem (measurement made at 30 cm from source of radioactivity), that are located within large areas such as reactor containment, where no enclosure exists for purposes of locking, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded and conspicuously posted, and a flashing light shall be activated as a warning device.

APPENDIX B

TO FACILITY OPERATNG LICENSES NO. NPF-41, NPF-51 AND NPF-74
PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3

ARIZONA PUBLIC SERVICE COMPANY, ET AL
DOCKET NOS. STN 50-528, STN 50-529 AND STN 50-530

ENVIRONMENTAL PROTECTION PLAN
(NON-RADIOLOGICAL)

NOVEMBER 1987

PALO VERDE NUCLEAR GENERATING STATION, UNITS, 1, 2 AND 3

ENVIRONMENTAL PROTECTION PLAN
(NON-RADIOLOGICAL)

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1.0 Objectives of the Environmental Protection Plan

The Environmental Protection Plan (EPP) is to provide for protection of environmental values during construction and operation of the nuclear facility. The principal objectives of the EPP are as follows:

(1) Verify that the station is operated in an environmentally acceptable manner, as established by the FES and other NRC environmental impact assessments.

(2) Coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection.

(3) Keep NRC informed of the environmental effects of facility construction and operation and of actions taken to control those effects.

2.0 Environmental Protection Issues

In the FES-OL dated February 1982, the staff considered the environmental impacts associated with the operation of the Palo Verde Nuclear Generating Station. Certain environmental issues were identified which required study or license conditions to resolve environmental concerns and to assure adequate protection of the environment.

2.1 Aquatic Issues

Because there will be no station effluents discharged to natural surface water bodies, station operation will have no direct adverse impacts on the quality of surface water. Therefore, there are no aquatic issues raised by the staff in the FES-OL.

2.2 Terrestrial Issues

No new terrestrial issues requiring environmental monitoring programs were identified in the FES-OL. The FES-CP did identify a program for monitoring the effects of salt deposition due to cooling tower drift. The requirements for this program specified in Subsection 4.2.2 of this EPP.

2.3 Cultural Resources Issues

Upon resolution of the final alignment of the PVNGS-to-Saguaro transmission line, the applicant will conduct an appropriate cultural resource survey relative to the corridor for NRC review and evaluation pursuant to condition 7.f. of the construction permit (FES-CP, p. iii). There is a need to protect any cultural resources sites identified in the survey which may be eligible for or which are included in the National Register of Historic Places. NRC requirements with regard to the cultural resources issues are specified in Subsection 4.2.1 of this EPP.

3.0 Consistency Requirements

3.1 Plant Design and Operation

The licensees may make changes in station design or operation or perform tests or experiments affecting the environment provided such changes, tests or experiments do not involve an unreviewed environmental question, and do not involve a change in the Environmental Protection Plan. Changes in plant design or operation or performance of tests or experiments which do not affect the environment are not subject to the requirements of this EPP. Activities governed by Subsection 3.2 of this EPP are not subject to the requirements of this subsection.

Before engaging in additional construction or operational activities which may affect the environment, the licensees shall prepare and record an environmental evaluation of such activity*. When the evaluation indicates that such activity involves an unreviewed environmental question, the licensees shall provide a written evaluation of such activities and obtain prior approval from the NRC. When such activity involves a change in the Environmental Protection Plan, such activity and change to the Environmental Protection Plan may be implemented only in accordance with an appropriate license amendment as set forth in Subsection 5.3 of this EPP.

A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if it concerns (1) a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Statement (FES) as modified by staff's testimony to the Atomic Safety and Licensing Board, supplements to the FES, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board; or (2) a significant change in effluents or power level or (3) a matter not previously reviewed and evaluated in the documents specified in (1) of this subsection, which may have a significant adverse environmental impact.

The licensees shall maintain records of changes in facility design or operation and of tests and experiments carried out pursuant to this subsection. These records shall include a written evaluation which provide bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question nor constitute a decrease in the effectiveness of this EPP to meet the objectives specified in Section 1.0. The licensees shall include as part of their Annual Environmental Operating Report (per Subsection 5.4.1 of this EPP) brief descriptions, analyses, interpretations, and evaluations of such changes, tests and experiments.

*Activities are excluded from this requirement if all measurable nonradiological effects are confined to the on-site areas previously disturbed during site preparation and plant construction.

3.2 Changes Required for Compliance with Other Environmental Regulations

Changes in plant design or operation and performance of tests or experiments which are required to achieve compliance with other Federal, State, or local environmental regulations are not subject to the requirements of Subsection 3.1 of this EPP.

4.0 Environmental Conditions

4.1 Unusual or Important Environmental Events

Any occurrence of an unusual or important event that indicates, or could result in, significant environmental impact causally related to plant operation shall be recorded and promptly reported to the NRC within 24 hours by telephone, telegraph, or facsimile transmissions followed by a written report per Subsection 5.4.2 of this EPP. The following are examples: excessive bird impaction events, onsite plant or animal disease outbreaks, mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973, fish kills, and an increase in nuisance organisms or conditions.

No routine monitoring programs are required to implement this condition.

4.2 Environmental Monitoring

4.2.1 Cultural Resources

Section 4.3.6 of the FES-OL states, "No Archeological surveys have been undertaken in the PVNGS-to-Saguaro corridor because the construction of this line is not scheduled until 1984-1986. When a final alignment for the Saguaro transmission line is selected, appropriate archeological surveys will be undertaken and submitted for staff review and evaluation pursuant to condition 7.f. of the construction permit (FES-CP, p. iii)." The licensees should consult with the State Historic Preservation Office (SHPO) and the NRC in developing an appropriate cultural resource survey. A survey report will be submitted to NRC for review. Should the survey identify significant sites which may be eligible for the National Register of Historic Places, the licensees shall be required to provide the NRC with the information necessary to initiate a determination of eligibility request to the Keeper of the National Register. The U.S. Department of Interior form entitled, "National Register of Historic Places Inventory-Nomination Form," should be filled out in detail with appropriate maps and other materials for each such site and returned to the NRC. Item 12 of the form need not be filled out. The licensees should refer to the Federal Register, September 21, 1977, Part 11, for detailed guidance. The NRC requests the licensees to take appropriate measures to protect such sites during the determination of eligibility process. Upon receipt and review of the information, the NRC will forward the materials to the Keeper for action. If the Keeper rules the sites are not eligible, the finding will be filed and this subsection of the EPP is fully satisfied with no further action required.

If the Keeper rules that any of the sites are eligible for the National Register, the licensees are required to provide the NRC with the information with regard to completing a determination of effect which the operation and maintenance activities of the plant may have on the eligible sites. The licensees should follow the steps presented in 36 CFR 800.3 and 36 CFR 800.4 in developing the information. Upon receipt of the information, the NRC, in consultation with the SHPO, will complete the determination of effect process. If the determination results in a no effect determination as provided in 36 CFR 800.4(4)(B)(1), the documentation will be filed and this subsection of the EPP is fully satisfied with no further action required.

If the determination results in an effect determination, the licensees will be required to provide the NRC with information adequate to document the effect determination and an appropriate action program which the licensees have developed in consultation with the SHPO and concurred in by the SHPO. Upon review of the program, the NRC will forward the documentation to the Advisory Council on Historic Preservation (ACHP) for comment.

After ACHP comment is received by NRC, the program will be revised, if necessary, to incorporate any comments provided by the ACHP. The licensees shall then proceed, in consultation with the SHPO, to implement the proposed program. Upon completion of the program, a report shall be submitted to the NRC which will include a description of the results of the program and the disposition of data recovered (if applicable). Upon submittal of this report, this subsection of the EPP is fully satisfied with no further action required.

4.2.2 Terrestrial Ecology Monitoring

The licensees will implement the Salt Deposition and Impact Monitoring Plan provided to NRC by letter dated May 17, 1985 from E. E. Van Brunt, Jr., Arizona Nuclear Power Project, to G. W. Knighton, U. S. Nuclear Regulatory Commission. The purpose of the Plan is to assess the impacts of cooling tower salt drift on soils, native vegetation and agricultural crops in the PVNGS vicinity.

The monitoring program shall commence by the onset of commercial operation of the first unit and continue for a minimum of three full years after the onset of operation of all three PVNGS Units or until such time that the licensees can demonstrate to the satisfication of the NRC that the objectives of the study have been fulfilled. Annual monitoring reports shall be submitted to the NRC for review.

The licensees may not make changes in the procedures described in the document without prior NRC approval unless the proposed changes do not affect the program objectives described in the introduction to the Monitoring Plan. For example, changes in the procedures, which affect sampling frequency, location, gear, or replication, can be made without prior NRC approval, but shall be reported to the NRC within 30 days after their implementation. These reports shall describe the changes made, the reasons for making the changes, and a statement showing how continuity of the study will be affected. Any modifications or changes of the initially approved program shall be governed by the need to maintain consistency with previously used procedures so that direct comparisons of data are technically valid. Such modifications or changes shall be justified and supported by adequate comparative sampling programs or studies demonstrating the comparability of results or which provide a basis for making adjustments that would permit direct comparisons. The licensees shall maintain at the site, available for inspection, a copy of the Monitoring Plan with all revisions.

5.0 Administrative Procedures

5.1 Review and Audit

The licensees shall provide for review and audit of compliance with the Environmental Protection Plan. The audits shall be conducted independently of the individuals or groups responsible for performing the specific activity. A description of the organizational structure utilized to achieve the independent review and audit function and the results of the audit activities shall be maintained and made available for inspection.

5.2 Records Retention

Records and logs relative to the environmental aspects of plant operation shall be made and retained in a manner convenient for review and inspection. These records and logs shall be made available to NRC on request.

Records of modifications to plant structures, systems and components determined to potentially affect the continued protection of the environment shall be retained for the life of the plant. All other records, data and logs relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

5.3 Changes in Environmental Protection Plan

Request for change in the Environmental Protection Plan shall include an assessment of the environmental impact of the proposed change and a supporting justification. Implementation of such changes in the EPP shall not commence prior to NRC approval of the proposed changes in the form of a license amendment incorporating the appropriate revision to the Environmental Protection Plan.

5.4 Plant Reporting Requirements

5.4.1 Routine Reports

An Annual Environmental Operating Report describing implementation of this EPP for the previous year shall be submitted to the NRC prior to May 1 of each year. The initial report shall be submitted prior to May 1 of the year following issuance of the operating license. The period of the first report shall begin with the date of issuance of the operating license for the first operational unit.

The report shall include summaries and analyses of the results of the environmental protection activities required by Subsection 4.2 of this Environmental Protection Plan for the report period, including a comparison with preoperational studies, operational controls, and an assessment of the observed impacts of the plant operation on the environment (as appropriate). If harmful effects or evidence of trends towards irreversible damage to the environment are observed, the licensees shall provide a detailed analysis of the data and a proposed course of action to alleviate the problem.

The Annual Environmental Operating Report shall also include:

(a) A list of EPP noncompliances and the corrective actions taken to remedy them.

(b) A list of all changes in station design or operation, tests, and experiments made in accordance with Subsection 3.1 of this EPP which involved a potentially significant unreviewed environmental issue.

(c) A list of nonroutine reports submitted in accordance with Subsection 5.4.2 of this EPP.

In the event that some results are not available by the report due date, the report shall be submitted noting and explaining the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

5.4.2 Nonroutine Reports

A written report shall be submitted to the NRC within 30 days of occurrence of nonroutine event. The report shall (a) describe, analyze, and evaluate the event, including the extent and magnitude of the impact and plant operating characteristics, (b) describe the probable cause of the event, (c) indicate the action taken to correct the reported event, (d) indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar components or systems, and (e) indicate the agencies notified and their preliminary responses.

Events reportable under this subsection which also require reports to other Federal, State or local agencies shall be reported in accordance with those reporting requirements in lieu of the requirements of this subsection. The NRC shall be provided a copy of such report at the same time it is submitted to the other agency.

APPENDIX C

ANTITRUST CONDITIONS
LICENSE NO. NPF-41

Arizona Public Service Company and the Salt River Project Agricultural Improvement and Power District shall comply with the following antitrust conditions:

1. In connection with the antitrust conditions, the following definitions are used herein:

   A. "Bulk Power" means the electric power, and any attendant energy, supplied or made available at transmission or subtransmission voltage by one entity to another.

   B. "Entity" means a person, private or public corporation, a municipality, a cooperative, an association, a joint stock association or business trust owning, operating or proposing in good faith to own or operate equipment or facilities for the generation, transmission or distribution of electricity to or for the public as a utility.

   C. "Joint Applicant(s)" means the Arizona Public Service Company and the Salt River Project Agricultural Improvement and Power District.

2. A. Each joint applicant will transmit Bulk Power over its transmission system, between or among two or more Entities with which it is interconnected, or will be interconnected in the future, without restrictions on use or resale of the power so transmitted, provided that such services can reasonably be accommodated from a technical standpoint without impairing each joint applicant's reliability or its own use of its facilities.

   B. Each joint applicant is obligated under this condition to transmit Bulk Power on the terms stated above, and in connection with each joint applicant's plan to construct new transmission facilities for its own use, to include in its planning and construction program sufficient transmission capacity for such Bulk Power transactions, provided that such applicant has received sufficient advance notice as may be necessary from a technical standpoint to accommodate the requirements of any requesting entity, and further provided that such entity(ies) are obligated as may be agreed (i) to share the capital, operating and maintenance costs of such new transmission facilities to the extent that additional costs burdens would be imposed on such joint applicant or (ii) to compensate the joint applicant fully for the use of its system.

3. The foregoing shall be implemented in a manner consistent with the provisions of the Federal Power Act as applicable and all rates, charges or practices in connection herewith are to be subject to the approval of regulatory agencies having jurisdiction over them.

APPENDIX D

ADDITIONAL CONDITIONS

RENEWED FACILITY OPERATING LICENSE NOS. NPF-41, NPF-51, AND NPF-74

The licensee shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Conditions	Implementation Date
205	APS shall apply a radial power fall off (RFO) curve penalty, equivalent to the fuel centerline temperature reduction in Section 4 of Attachment 8 to the Palo Verde license amendment request dated July 1, 2016, to accommodate the anticipated impacts of thermal conductivity degradation (TCD) on the predictions of FATES3B at high burnup for Westinghouse Next Generation Fuel or to future Westinghouse-supplied fuel designs introduced at PVNGS to which the FATES3B fuel performance code would be applied. To ensure the adequacy of this RFO curve penalty, as part of its normal reload process for each cycle that analysis using FATES3B is credited, APS shall verify that the FATES3B analysis is conservative with respect to an applicable confirmatory analysis using an acceptable fuel performance methodology that explicitly accounts for the effects of TCD. The verification shall confirm satisfaction of the following conditions: i. The maximum fuel rod stored energy in the confirmatory analysis is bounded by the maximum fuel rod stored energy calculated in the FATES3B and STRIKIN-II analyses with the RFO curve penalty applied. ii. All fuel performance design criteria are met under the confirmatory analysis. If either of the above conditions cannot be satisfied initially, APS shall adjust the RFO curve penalty or other core design parameters such that both conditions are met.	The license amendment shall be implemented within 90 days of the date of issuance.

Amendment Number	Additional Conditions	Implementation Date
207	APS is approved to implement 10 CFR 50.69 using the processes for categorization of Risk-Informed Safety Class (RISC)-1, RISC-2, RISC-3, and RISC-4 structures, systems, and components (SSCs) using: Probabilistic Risk Assessment (PRA) models to evaluate risk associated with internal events, internal flooding, internal fire, and seismic; the shutdown safety assessment process to assess shutdown risk; the Arkansas Nuclear One, Unit 2 (ANO-2) passive categorization method to assess passive component risk for Class 2 and Class 3 SSCs and their associated supports; and the results of non-PRA evaluations that are based on a screening of other external hazards using the external hazard screening significance process identified in ASME/ANS PRA Standard RA-Sa-2009; as specified in license amendment 207 dated October 10, 2018. Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization process specified above (e.g., change from a seismic margins approach to a seismic probabilistic risk assessment approach). APS will complete the implementation items listed in the Enclosure of APS letter 102-07546, dated July 19, 2017, to the NRC and in Attachment 1, Table 1-1 of APS letter 102-07690, dated May 9, 2018, prior to implementation of 10 CFR 50.69. All issues identified in the enclosure will be addressed and any associated changes will be made, focused scope peer reviews will be performed on changes that are PRA upgrades as defined in the PRA standard (ASME/ANS RA-Sa-2009, as endorsed by RG 1.200, Revision 2), and any findings will be resolved and reflected in the PRA of record prior to implementation of the 10 CFR 50.69 categorization process.	The license amendment shall be implemented within 90 days of the date of issuance.

Amendment Number	Additional Conditions	Implementation Date
209	Arizona Public Service Company (APS) is approved to implement the risk-informed completion time (RICT) program specified in license amendment 209 dated May 29 , 2019. The risk assessment approach and methods, shall be acceptable to the NRC, be based on the as-built, as-operated, and maintained plant, and reflect the operating experience of the plant as specified in RG 1.200. Methods to assess the risk from extending the completion times must be PRA methods accepted as part of this license amendment, or other methods approved by the NRC. If the licensee wishes to use a newly developed method, and the change is outside the bounds of this license condition, the licensee will seek prior NRC approval, via a license amendment. APS will complete the implementation items listed in the Enclosure of APS letter 102-07587, dated November 3, 2017, to the NRC and in Attachment 1, Table 1-1 of APS letter 102-07691, dated May 18, 2018, as updated by APS letter 102-07801, dated October 5, 2018, prior to implementation of RICTs. All issues identified will be addressed and any associated changes will be made, focused scope peer reviews will be performed on changes that are PRA upgrades as defined in the PRA standard (ASME/ANS RA-Sa-2009, as endorsed by RG 1.200, Revision 2), and any findings will be resolved and reflected in the PRA of record prior to implementation of the RICT program.	Prior to implementation of RICT program.

Amendment Number	Additional Conditions	Implementation Date
212	Prior to use of fresh fuel from multiple fuel vendors in a single reload batch, APS will obtain NRC approval of the methodology used to perform the associated reload safety analyses. Lead Test assemblies per Technical Specification (TS) 4.2.1.b are not considered mixed fresh fuel.	The license amendment shall be implemented within 90 days of the date of issuance.