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Standard Technical Specifications

Westinghouse Advanced Passive 1000 (AP1000) Plants

Volume 1: Specifications

Office of Nuclear Reactor Regulation

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Volume 1: Specifications

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ABSTRACT

This NUREG contains the Standard Technical Specifications (STS) for Westinghouse Advanced Passive 1000 (AP1000) plants. This NUREG is based on the generic technical specifications (TS) of the AP1000 design certification rule, Appendix D, "Design Certification Rule for the AP1000 Design," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." This NUREG is also based on the plant-specific TS for Vogtle Electric Generating Plant (VEGP) Unit 3, for which the first combined license (COL) under 10 CFR 52.97, "Issuance of combined licenses," was granted by the U.S. Nuclear Regulatory Commission (NRC) (COL No. NFP-91), as revised on September 9, 2013, by Amendment 13 to the VEGP Unit 3 COL (78 FR 64541) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13238A337). Subsequently, the NRC has issued additional amendments to the VEGP Unit 3 TS (i.e., through Amendment 186), which inform the basis for Revision 1 of the AP1000 STS NUREG.

The AP1000 generic TS were modeled on the format and applicable content of the improved STS for pre-AP1000 Westinghouse plants in NUREG-1431, "STS Westinghouse Plants," Revision 2, issued in 2001 (ADAMS Accession No. ML011840223). Accordingly, the AP1000 STS are also based on applicable NRC-approved generic changes to NUREG-1431 since Revision 2 (with exceptions), which have been incorporated in the improved STS in Revision 5, issued in 2021 (ADAMS Accession Nos. ML21259A155 and ML21259A159). In addition, the AP1000 utilities and NRC staff have made editorial changes to increase the clarity and usability of the AP1000 STS NUREG. Most of the changes reflected in this first revision of the AP1000 STS NUREG, are the results of the many plant-specific TS amendments granted since Amendment 13 to the VEGP Unit 3 COL and of experience gained during the construction of VEGP Unit 3.

The improved STS were developed based on the selection criteria for limiting conditions for operation in the Final Commission Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, dated July 22, 1993 (58 FR 39132), which were subsequently codified by changes to 10 CFR 50.36, "Technical specifications" (60 FR 36953). Licensees of pre-AP1000 Westinghouse plants are encouraged to upgrade their plant-specific TS consistent with those criteria and conforming, to the extent practical, to Revision 5 of the improved STS. Likewise, licensees of AP1000 plants are encouraged to update their plant-specific TS to conform, to the extent practical, to Revision 1 of the AP1000 STS. Licensees adapting portions of the STS to existing plant-specific TS should adapt all related requirements, as applicable, to achieve a high degree of standardization and consistency.

Users may access, print, or download the STS NUREGs in PDF format from the NRC website at http://www.nrc.gov.

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1.0 USE AND APPLICATION 1.1-1
1.1 Definitions 1.1-1
1.2 Logical Connectors 1.2-1
1.3 Completion Times 1.3-1
1.4 Frequency 1.4-1

2.0 SAFETY LIMITS (SLs) 2.0-1
2.1 SLs 2.0-1
2.2 SAFETY LIMIT VIOLATIONS 2.0-1

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY 3.0-1
3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY 3.0-3

3.1 REACTIVITY CONTROL SYSTEMS 3.1.1-1
3.1.1 SHUTDOWN MARGIN (SDM) 3.1.1-1
3.1.2 Core Reactivity 3.1.2-1
3.1.3 Moderator Temperature Coefficient (MTC) 3.1.3-1
3.1.4 Rod Group Alignment Limits 3.1.4-1
3.1.5 Shutdown Bank Insertion Limits 3.1.5-1
3.1.6 Control Bank Insertion Limits 3.1.6-1
3.1.7 Rod Position Indication 3.1.7-1
3.1.8 PHYSICS TESTS Exceptions – MODE 2 .... 3.1.8-1
3.1.9 Chemical and Volume Control System (CVS) Demineralized Water Isolation (DWI) Valves and Makeup Line Isolation (MLI) Valves 3.1.9-1
3.1.10 Rod Withdrawal Test Exception – MODE 5 .... 3.1.10-1

3.2 POWER DISTRIBUTION LIMITS 3.2.1-1
3.2.1 Heat Flux Hot Channel Factor ($F_Q(Z)$) (Constant Axial Offset Control (CAOC) W(Z) Methodology) 3.2.1-1
3.2.2 Nuclear Enthalpy Rise Hot Channel Factor ($F^N_{\Delta H}$) 3.2.2-1
3.2.3 AXIAL FLUX DIFFERENCE (AFD) (Constant Axial Offset Control (CAOC) Methodology) 3.2.3-1
3.2.4 QUADRANT POWER TILT RATIO (QPTR) 3.2.4-1
3.2.5 On-Line Power Distribution Monitoring System (OPDMS)-Monitored Parameters 3.2.5-1

3.3 INSTRUMENTATION 3.3.1-1
3.3.1 Reactor Trip System (RTS) Instrumentation 3.3.1-1
3.3.2 Reactor Trip System (RTS) Source Range Instrumentation 3.3.2-1
3.3.3 Reactor Trip System (RTS) Intermediate Range Instrumentation 3.3.3-1
3.3.4 Reactor Trip System (RTS) Engineered Safety Feature Actuation System (ESFAS) Instrumentation 3.3.4-1
3.3.5 Reactor Trip System (RTS) Manual Actuation 3.3.5-1
3.3.6 Reactor Trip System (RTS) Automatic Trip Logic 3.3.6-1
3.3.7 Reactor Trip System (RTS) Trip Actuation Devices 3.3.7-1
3.3.8 Engineered Safety Feature Actuation System (ESFAS) Instrumentation 3.3.8-1
3.3.9 Engineered Safety Feature Actuation System (ESFAS) Manual Initiation 3.3.9-1

3.3 INSTRUMENTATION (continued)
3.3.10 Engineered Safety Feature Actuation System (ESFAS) Reactor Coolant System (RCS) Hot Leg Level Instrumentation 3.3.10-1
3.3.11 Engineered Safety Feature Actuation System (ESFAS) Startup Feedwater Flow Instrumentation 3.3.11-1
3.3.12 Engineered Safety Feature Actuation System (ESFAS) Reactor Trip Initiation 3.3.12-1
3.3.13 Engineered Safety Feature Actuation System (ESFAS) Main Control Room Isolation and Air Supply Initiation, and Electrical Load De-energization 3.3.13-1
3.3.14 Engineered Safety Feature Actuation System (ESFAS) In-containment Refueling Water Storage Tank (IRWST) and Spent Fuel Pool Level Instrumentation 3.3.14-1
3.3.15 Engineered Safety Feature Actuation System (ESFAS) Actuation Logic – Operating 3.3.15-1
3.3.16 Engineered Safety Feature Actuation System (ESFAS) Actuation Logic – Shutdown 3.3.16-1
3.3.17 Post Accident Monitoring (PAM) Instrumentation 3.3.17-1
3.3.18 Remote Shutdown Workstation (RSW) 3.3.18-1
3.3.19 Diverse Actuation System (DAS) Manual Controls 3.3.19-1
3.3.20 Automatic Depressurization System (ADS) and In-containment Refueling Water Storage Tank (IRWST) Injection Blocking Device 3.3.20-1

3.4 REACTOR COOLANT SYSTEM (RCS) 3.4.1-1
3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits 3.4.1-1
3.4.2 RCS Minimum Temperature for Criticality 3.4.2-1
3.4.3 RCS Pressure and Temperature (P/T) Limits 3.4.3-1
3.4.4 RCS Loops 3.4.4-1
3.4.5 Pressurizer 3.4.5-1
3.4.6 Pressurizer Safety Valves 3.4.6-1
3.4.7 RCS Operational LEAKAGE 3.4.7-1
3.4.8 Minimum RCS Flow 3.4.8-1
3.4.9 RCS Leakage Detection Instrumentation 3.4.9-1
3.4.10 RCS Specific Activity 3.4.10-1
3.4.11 Automatic Depressurization System (ADS) – Operating 3.4.11-1
3.4.12 Automatic Depressurization System (ADS) – Shutdown, RCS Intact 3.4.12-1
3.4.13 Automatic Depressurization System (ADS) – Shutdown, RCS Open 3.4.13-1
3.4.14 Low Temperature Overpressure Protection (LTOP) 3.4.14-1
3.4.15 RCS Pressure Isolation Valve (PIV) Integrity 3.4.15-1
3.4.16 Reactor Vessel Head Vent (RVHV) 3.4.16-1
3.4.17 Steam Generator (SG) Tube Integrity 3.4.17-1

3.5 PASSIVE CORE COOLING SYSTEM (PXS) 3.5.1-1
3.5.1 Accumulators 3.5.1-1
3.5.2 Core Makeup Tanks (CMTs) – Operating 3.5.2-1
3.5.3 Core Makeup Tanks (CMTs) – Shutdown, Reactor Coolant System (RCS) Intact 3.5.3-1
3.5.4 Passive Residual Heat Removal Heat Exchanger (PRHR HX) – Operating 3.5.4-1

3.5 PASSIVE CORE COOLING SYSTEM (PXS) (continued)
3.5.5 Passive Residual Heat Removal Heat Exchanger (PRHR HX) – Shutdown, Reactor Coolant System (RCS) Intact 3.5.5-1
3.5.6 In-containment Refueling Water Storage Tank (IRWST) – Operating 3.5.6-1
3.5.7 In-containment Refueling Water Storage Tank (IRWST) – Shutdown, MODE 5 .... 3.5.7-1
3.5.8 In-containment Refueling Water Storage Tank (IRWST) – Shutdown, MODE 6 .... 3.5.8-1

3.6 CONTAINMENT SYSTEMS 3.6.1-1
3.6.1 Containment 3.6.1-1
3.6.2 Containment Air Locks 3.6.2-1
3.6.3 Containment Isolation Valves 3.6.3-1
3.6.4 Containment Pressure 3.6.4-1
3.6.5 Containment Air Temperature 3.6.5-1
3.6.6 Passive Containment Cooling System (PCS) 3.6.6-1
3.6.7 Containment Penetrations 3.6.7-1
3.6.8 pH Adjustment 3.6.8-1
3.6.9 Vacuum Relief Valves 3.6.9-1

3.7 PLANT SYSTEMS 3.7.1-1
3.7.1 Main Steam Safety Valves (MSSVs) 3.7.1-1
3.7.2 Main Steam Line Flow Path Isolation Valves 3.7.2-1
3.7.3 Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Control Valves (MFCVs) 3.7.3-1
3.7.4 Secondary Specific Activity 3.7.4-1
3.7.5 Spent Fuel Pool Water Level 3.7.5-1
3.7.6 Main Control Room Emergency Habitability System (VES) 3.7.6-1
3.7.7 Startup Feedwater Isolation and Control Valves 3.7.7-1
3.7.8 Main Steam Line Leakage 3.7.8-1
3.7.9 Spent Fuel Pool Makeup Water Sources 3.7.9-1
3.7.10 Steam Generator (SG) Isolation Valves 3.7.10-1
3.7.11 Spent Fuel Pool Boron Concentration 3.7.11-1
3.7.12 Spent Fuel Pool Storage 3.7.12-1
3.7.13 Spent Fuel Pool Cooling System (SFS) Containment Isolation Valves 3.7.13-1

3.8 ELECTRIC POWER SYSTEMS 3.8.1-1
3.8.1 DC Sources – Operating 3.8.1-1
3.8.2 DC Sources – Shutdown 3.8.2-1
3.8.3 Inverters – Operating 3.8.3-1
3.8.4 Inverters – Shutdown 3.8.4-1
3.8.5 Distribution Systems – Operating 3.8.5-1
3.8.6 Distribution Systems – Shutdown 3.8.6-1
3.8.7 Battery Parameters 3.8.7-1

3.9 REFUELING OPERATIONS....3.9.1-1
3.9.1 Boron Concentration....3.9.1-1
3.9.2 Unborated Water Source Flow Paths....3.9.2-1
3.9.3 Nuclear Instrumentation....3.9.3-1
3.9.4 Refueling Cavity Water Level....3.9.4-1
3.9.5 Decay Time....3.9.5-1

4.0 DESIGN FEATURES....4.0-1
4.1 Site Location....4.0-1
4.2 Reactor Core....4.0-1
4.3 Fuel Storage....4.0-2

5.0 ADMINISTRATIVE CONTROLS....5.1-1
5.1 Responsibility....5.1-1
5.2 Organization....5.2-1
5.3 Unit Staff Qualifications....5.3-1
5.4 Procedures....5.4-1
5.5 Programs and Manuals....5.5-1
5.6 Reporting Requirements....5.6-1
5.7 High Radiation Area....5.7-1

1.0 USE AND APPLICATION

1.1 Definitions

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

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

1.1 Definitions

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 OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.3. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries per gram) that alone would produce the same committed effective dose equivalent as the quantity and isotopic mixture of I-130, I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be those listed in Table 2.1 of EPA Federal Guidance Report No. 11, “Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion,” EPA-520/1-88-020, September 1988.
DOSE EQUIVALENT XE-133	DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same effective dose equivalent as the quantity and isotopic mixture of noble gases (Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138) actually present. The dose conversion factors used for this calculation shall be those listed in Table III.1 of EPA Federal Guidance Report No. 12, “External Exposure to Radionuclides in Air, Water, and Soil,” EPA 402 R 93 081, September 1993.

1.1 Definitions

ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions). 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.
LEAKAGE	LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE, such as that from seals or valve packing, 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;

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

4. RCS LEAKAGE through the passive residual heat removal heat exchanger (PRHR HX) to the In-containment Refueling Water Storage Tank (IRWST).

b. Unidentified LEAKAGE

All LEAKAGE that is not identified LEAKAGE.

c. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE and PRHR HX tube LEAKAGE) through a nonisolatable fault in an RCS component body, pipe wall, or vessel wall.

1.1 Definitions

MODE	A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE – OPERABILITY	A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: a. Described in Chapter 14, Initial Test Program, of the FSAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.4.
QUADRANT POWER TILT RATIO (QPTR)	QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3400 MWt.

1.1 Definitions

REACTOR TRIP SYSTEM (RTS) RESPONSE TIME	The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of gripper coils voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming: a. All Rod Cluster Control Assemblies (RCCAs) are fully inserted except for the single assembly of highest reactivity worth, which is assumed to be fully withdrawn. However, with all RCCAs verified fully inserted by two independent means, it is not necessary to account for a stuck RCCA in the SDM calculation. With any RCCAs not capable of being fully inserted, the reactivity worth of these assemblies must be accounted for in the determination of SDM; and b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level. In MODE 2 with $k_{eff} < 1.0$, and in MODES 3, 4, and 5, the worth of the verified fully inserted Gray Rod Cluster Assemblies (GRCAs) which have passed the acceptance criteria for GRCA bank worth measurements performed during startup physics testing may be included in the SDM calculation.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during n Surveillance Frequency intervals, where n is the total number of systems, subsystems, channels, or other designated components in the associated function.

1.1 Definitions

THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)	A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy. The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps.
VENTED	VENTED shall be the condition when all required flow paths in ADS Stages 1, 2, and 3, or alternative flow path with equivalent area, required by LCO 3.4.13, "Automatic Depressurization System (ADS) – Shutdown, RCS Open," are open.

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTIVITY CONDITION (k_{eff})	% RATED THERMAL POWER[(a)]	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	≥ 0.99	> 5	NA
2	Startup	≥ 0.99	≤ 5	NA
3	Hot Standby	< 0.99	NA	> 420
4	Safe Shutdown[(b)]	< 0.99	NA	$420 \geq T_{avg} > 200$
5	Cold Shutdown[(b)]	< 0.99	NA	≤ 200
6	Refueling[(c)]	NA	NA	NA

(a) Excluding decay heat.

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

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

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE	The purpose of this section is to explain the meaning of logical connectors. Logical connectors are used in Technical Specifications to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in Technical Specifications are <u>AND</u> and <u>OR</u>. The physical arrangement of these connectors constitutes logical conventions with specific meaning.
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 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.

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-1

ACTIONS

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

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

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

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

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

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE

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

BACKGROUND

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

DESCRIPTION

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

Unless otherwise specified, the Completion Time begins when a senior licensed operator on the operating shift crew with responsibility for plant operations makes the determination that an LCO is not met and an ACTIONS Condition is entered. The “otherwise specified” exceptions are varied, such as a Required Action Note or Surveillance Requirement Note that provides an alternative time to perform specific tasks, such as testing, without starting the Completion Time. While utilizing the Note, should a Condition be applicable for any reason not addressed by the Note, the Completion Time begins. Should the time allowance in the Note be exceeded, the Completion Time begins at that point. The exceptions may also be incorporated into the Completion Time. For example, LCO 3.5.1, “Accumulators,” Required Action B.1, requires restoring accumulator to OPERABLE status. The Completion Time states, “1 hour from discovery of LCO 3.5.1 Condition B entry concurrent with LCO 3.5.2 Condition C or E entry.” In this case, the Completion Time does not begin until the conditions in the Completion Time are satisfied.

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

1.3 Completion Times

DESCRIPTION (continued)

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

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

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

a. Must exist concurrent with the first inoperability; and

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

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

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

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

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

1.3 Completion Times

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.

1.3 Completion Times

EXAMPLES (continued)

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.	6 hours
	AND		
	B.2	Be in MODE 5.	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 entering MODE 3 and a total of 36 hours (not 42 hours) is allowed for entering MODE 5 from the time that Condition B was entered. If MODE 3 is entered within 3 hours, the time allowed for entering MODE 5 is the next 33 hours because the total time allowed for entering MODE 5 is 36 hours.

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

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

When a valve is declared inoperable, Condition A is entered. If the valve 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 valve is restored to OPERABLE status after Condition B is entered, then Conditions A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

When a second valve is declared inoperable while the first valve is still inoperable, Condition A is not re-entered for the second valve. LCO 3.0.3 is entered, since the ACTIONS do not include a Condition for more than one inoperable valve. 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 valves is restored to OPERABLE status and the Completion Time for Condition A has not expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition A.

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

1.3 Completion Times

EXAMPLES (continued)

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

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

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

1.3 Completion Times

EXAMPLES (continued)

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A.

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more valves inoperable.	A.1	Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours

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

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

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more valves inoperable.	A.1	Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 AND B.2	Be in MODE 3. 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 only applicable 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 to be tracked on a per valve basis. When a valve is declared inoperable, Condition A is entered and its Completion Time starts. If subsequent valves are declared inoperable, Condition A is entered for each valve and separate Completion Times start and are tracked for each valve.

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

1.3 Completion Times

EXAMPLES (continued)

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

EXAMPLE 1.3-6

ACTIONS

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

Entry into Condition A offers a choice between Required Action A.1 or Required Action A.2. Required Action A.1 has a “once per” Completion Time, which qualifies for the 25% extension, per Surveillance Requirement (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 completed within the first 8 hour interval. If Required Action A.1 is followed, and the Required Action is not met within the Completion Time (plus the extension allowed by SR 3.0.2), Condition B is entered. If Required Action A.2 is followed and the Completion Time of 8 hours is not met, Condition B is entered.

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

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

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

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

1.3 Completion Times

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

1.0 USE AND APPLICATION

1.4 Frequency

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

DESCRIPTION

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

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

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

Potential SR 3.0.4 conflicts arise in 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. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated so that it is only “required” when it can and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

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

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

1.4 Frequency

DESCRIPTION (continued)

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

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

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

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

EXAMPLES

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications. 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 the specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Example 1.4-3), then SR 3.0.3 becomes applicable.

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

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

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

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

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

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

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval (plus the extension allowed by SR 3.0.2), there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-5

SURVEILLANCE REQUIREMENTS

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

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

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

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

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-6

SURVEILLANCE REQUIREMENTS

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

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

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

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

2.1.1.1 The departure from nucleate boiling ratio (DNBR) shall be maintained ≥ 1.14 for the WRB-2M DNB correlation.

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

2.1.2 RCS Pressure SL

In MODES 1, 2, 3, 4, and 5 the RCS pressure shall be maintained ≤ 2733.5 psig.

2.2 SAFETY LIMIT VIOLATIONS

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

2.2.2 If SL 2.1.2 is violated:

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

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

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1

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

LCO 3.0.2

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

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

LCO 3.0.3

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

a. MODE 3 within 7 hours;

b. MODE 4 within 13 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

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

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

LCO 3.0.4

When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except 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. This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or are part of a shutdown of the unit.

Exceptions to this Specification are stated in the individual Specifications. LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.

3.0 LCO Applicability

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

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

LCO 3.0.7 Test Exception LCOs 3.1.8 and 3.1.10 allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1 SRs shall be met during the MODES or other specified conditions in the Applicability of 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 a failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

SR 3.0.2 The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

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

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

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3 If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. The delay period is only applicable when there is a reasonable expectation the surveillance will be met when performed. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

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

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

3.0 SR Applicability

SR 3.0.4 Entry into a MODE or other specified condition in the Applicability of an LCO shall not be made unless the LCO's Surveillances have been met within their specified Frequency. 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.

SR 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.1.1 Verify SDM to be within limits.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Core Reactivity

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

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.2.1	------------------------------NOTE------------------------------ The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 effective full power days (EFPD) after each fuel loading. --- Verify measured core reactivity is within ±1% Δk/k of predicted values.	Once prior to entering MODE 1 after each refueling <u>AND</u> --------NOTE-------- Only required to be performed after 60 EFPD ----------------------- 31 EFPD thereafter

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Moderator Temperature Coefficient (MTC)

LCO 3.1.3 The MTC shall be maintained within the limits specified in the COLR.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.3.2	------------------------------NOTES------------------------------- 1. Not required to be performed provided applicable criteria in the COLR are satisfied. 2. Not required to be performed if the MTC measured at the equivalent of equilibrium RTP all rods out (ARO) boron concentration of ≤ 60 ppm is less negative than the 60 ppm Surveillance limit specified in the COLR. --	
	Verify MTC is within lower limit.	Once within 7 effective full power days (EFPD) after reaching the equivalent of an equilibrium RTP ARO boron concentration of 300 ppm <u>AND</u> 14 EFPD thereafter when MTC is more negative than the 300 ppm Surveillance limit (not LCO limit) specified in the COLR

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Rod Group Alignment Limits

LCO 3.1.4 Each Rod Cluster Control Assembly (RCCA) shall be OPERABLE.

AND

Individual indicated rod positions of each RCCA and Gray Rod Cluster Assembly shall be within 12 steps of their group step counter demand position.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCCA(s) inoperable.	A.1.1 Verify SDM to be within the limits specified in the COLR.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limits.	1 hour
	AND	
	A.2 Be in MODE 3.	6 hours
B. One rod not within alignment limits.	B.1.1 Verify On-Line Power Distribution Monitoring System (OPDMS) is monitoring parameters.	Once per hour
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.1.2	Restore rod to within alignment limit.	8 hours
	<u>OR</u>		
	B.2	Restore rod to within alignment limit.	1 hour from discovery that OPDMS is not monitoring parameters
	<u>OR</u>		
	B.3.1.1	Verify SDM to be within the limits specified in the COLR.	1 hour
	<u>OR</u>		
	B.3.1.2	Initiate boration to restore SDM to within limits.	1 hour
	<u>AND</u>		
	B.3.2	Reduce THERMAL POWER to ≤ 75% RTP.	2 hours
	<u>AND</u>		
	B.3.3.1	Perform SR 3.2.5.1.	Once per 12 hours
	<u>OR</u>		
	B.3.3.2.1	Verify SDM is within the limits specified in the COLR.	Once per 12 hours
	<u>AND</u>		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3.3.2.2	Perform SR 3.2.1.1 and SR 3.2.1.2.	72 hours
	<u>AND</u>		
	B.3.3.2.3	Perform SR 3.2.2.1.	72 hours
	<u>AND</u>		
	B.3.4	Re-evaluate safety analyses and confirm results remain valid for duration of operation under these conditions.	5 days
C. Required Action and associated Completion Time of Condition B not met.	C.1	Be in MODE 3.	6 hours
D. More than one rod not within alignment limits.	D.1.1	Verify SDM is within the limits specified in the COLR.	1 hour
	<u>OR</u>		
	D.1.2	Initiate boration to restore required SDM to within limits.	1 hour
	<u>AND</u>		
	D.2	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	------------------------------NOTE------------------------------- Not required to be performed for rods associated with inoperable digital rod position indication or demand position indication. --- Verify position of individual rods within alignment limit.	12 hours
SR 3.1.4.2	Verify rod freedom of movement (trippability) by moving each RCCA not fully inserted in the core ≥ 10 steps in either direction.	92 days
SR 3.1.4.3	Verify rod drop time of each RCCA, from the fully withdrawn position, is ≤ 2.7 seconds from the beginning of decay of gripper coil voltage to dashpot entry, with: a. T_{avg} ≥ 500°F, and b. All reactor coolant pumps operating.	Once prior to reactor criticality after each removal of the reactor head, and after each earthquake requiring plant shutdown

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Shutdown Bank Insertion Limits

LCO 3.1.5 Each Shutdown Bank shall be within insertion limits specified in the COLR.

--NOTE---
Not applicable to shutdown banks inserted while performing SR 3.1.4.2.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each shutdown bank is within the insertion limits specified in the COLR.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Control Bank Insertion Limits

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

---NOTES--

1. Not applicable to control banks inserted while performing SR 3.1.4.2.

2. Not applicable to Gray Rod Cluster Assembly (GRCA) banks for up to 1 hour during GRCA bank sequence exchange.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Control bank insertion limits not met.	A.1.1 Verify SDM is within the limits specified in the COLR. OR A.1.2 Initiate boration to restore SDM to within limits. AND A.2 Restore control bank(s) to within limits.	1 hour 1 hour 2 hours

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify the estimated critical control bank position is within limits specified in the COLR.	Within 4 hours prior to achieving criticality
SR 3.1.6.2	Verify each control bank is within the insertion limits specified in the COLR.	12 hours
SR 3.1.6.3	Verify sequence and overlap limits, specified in the COLR, are met for control banks not fully withdrawn from the core.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Rod Position Indication

LCO 3.1.7 The Digital Rod Position Indication (DRPI) for each rod and the Bank Demand Position Indication for each group shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

---NOTE---
Separate Condition entry is allowed for each inoperable DRPI and each demand position indication.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One DRPI per group inoperable in one or more groups.	A.1 Verify the position of the rod with inoperable DRPI indirectly by using the incore detectors.	Once per 8 hours
	<u>OR</u>	
	A.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
B. More than one DRPI per group inoperable in one or more groups.	B.1 Place the rods under manual control.	Immediately
	<u>AND</u>	
	B.2 Restore inoperable DRPI(s) to OPERABLE status such that a maximum of one DRPI per group is inoperable.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more rods with inoperable DRPI have been moved in excess of 24 steps in one direction since the last determination of the rod's position.	C.1 Verify the position of the rods with inoperable DRPI indirectly by using the incore detectors.	4 hours
	<u>OR</u>	
	C.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
D. One or more demand position indication per bank inoperable in one or more banks.	D.1.1 Verify by administrative means all DRPIs for the affected banks are OPERABLE.	Once per 8 hours
	<u>AND</u>	
	D.1.2 Verify the most withdrawn rod and the least withdrawn rod of the affected banks are ≤ 12 steps apart.	Once per 8 hours
	<u>OR</u>	
	D.2 Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	-------------------------------NOTE-------------------------------- Not required to be met for DRPI associated with a rod that does not meet LCO 3.1.4, “Rod Group Alignment Limits.” -- Verify each DRPI agrees within 12 steps of the group demand position for the full indicated range of rod travel.	Once prior to criticality after each removal of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 PHYSICS TESTS Exceptions – MODE 2

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

LCO 3.1.3, “Moderator Temperature Coefficient (MTC),”
LCO 3.1.4, “Rod Group Alignment Limits,”
LCO 3.1.5, “Shutdown Bank Insertion Limits,”
LCO 3.1.6, “Control Bank Insertion Limits,” and
LCO 3.4.2, “RCS Minimum Temperature for Criticality”

may be suspended, and the number of required channels for LCO 3.3.1, “Reactor Trip System (RTS) Instrumentation,” Functions 1, 2, 3, and 4, may be reduced to 3 provided:

a. Reactor Coolant System (RCS) lowest loop average temperature is ≥ 541°F,

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

c. THERMAL POWER is ≤ 5% RTP.

APPLICABILITY: During PHYSICS TESTS initiated in MODE 2.

ACTIONS

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	Verify the RCS lowest loop average temperature is ≥ 541°F.	30 minutes
SR 3.1.8.2	Verify THERMAL POWER is ≤ 5% RTP.	30 minutes
SR 3.1.8.3	Verify SDM is within the limits specified in the COLR.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.9 Chemical and Volume Control System (CVS) Demineralized Water Isolation (DWI) Valves and Makeup Line Isolation (MLI) Valves

LCO 3.1.9 Two CVS Demineralized Water Isolation valves and two CVS Makeup Line Isolation valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, and 5.

ACTIONS

---NOTE---

Flow paths may be unisolated intermittently under administrative controls.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CVS demineralized water isolation valve inoperable. <u>OR</u> One CVS makeup line isolation valve inoperable. <u>OR</u> One CVS demineralized water isolation valve and one CVS makeup line isolation valve inoperable.	A.1 Restore two CVS demineralized water isolation valves and two CVS makeup line isolation valves to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two CVS demineralized water isolation valves inoperable. <u>OR</u> Two CVS makeup line isolation valves inoperable.	B.1	Isolate the affected flow path(s) from the demineralized water storage tank to the Reactor Coolant System by use of at least one closed manual or one closed and de-activated automatic valve.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.9.1	Verify two CVS demineralized water isolation valves and two CVS makeup line isolation valves stroke closed.	In accordance with the Inservice Testing Program
SR 3.1.9.2	Verify closure time of each CVS makeup isolation valve is within limits on an actual or simulated actuation signal.	In accordance with the Inservice Testing Program
SR 3.1.9.3	Verify each CVS demineralized water isolation valve actuates to the isolation position on an actual or simulated actuation signal.	24 months

3.1 REACTIVITY CONTROL SYSTEMS

3.1.10 Rod Withdrawal Test Exception – MODE 5

LCO 3.1.10 During the performance of rod movement and rod drop time testing, the requirements of LCO 3.4.4, "RCS Loops," may be suspended provided boron concentration of the Reactor Coolant System (RCS) is greater than the all rods out (ARO) boron concentration that provides $k_{eff} < 0.99$.

APPLICABILITY: MODE 5 with LCO 3.4.4 not met.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Initiate action to fully insert all rods. AND A.2 Place the Plant Control System in a condition incapable of rod withdrawal.	Immediately 1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.10.1 Verify boron concentration of the RCS is greater than the ARO boron concentration providing $k_{eff} < 0.99$.	12 hours

3.2 POWER DISTRIBUTION LIMITS

3.2.1 Heat Flux Hot Channel Factor ($F_Q(Z)$) (Constant Axial Offset Control (CAOC) W(Z) Methodology)

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

APPLICABILITY: MODE 1 with THERMAL POWER ≥ 25% RTP and with On-line Power Distribution Monitoring System (OPDMS) not monitoring parameters.

ACTIONS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ------------NOTE------------ Required Action B.3 shall be completed whenever this Condition is entered. -------------------------------- $F_Q^W(Z)$ not within limits.	B.1 Reduce THERMAL POWER ≥ 1% for each 1% $F_Q^W(Z)$ exceeds limit.	4 hours
	<u>AND</u>	
	B.2 Reduce Overpower ΔT trip setpoints ≥ 1% for each 1% $F_Q^W(Z)$ exceeds limit.	72 hours
	<u>AND</u>	
	B.3 Perform SR 3.2.1.1 and SR 3.2.1.2.	Prior to increasing THERMAL POWER above the limit of Required Action B.1
C. Required Action and associated Completion Time not met.	C.1 Reduce THERMAL POWER to < 25% RTP	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	--------------------------------NOTE-------------------------------- Not required to be performed if OPDMS was monitoring parameters upon exceeding 75% RTP. --- Verify $F_Q^C(Z)$ within limits.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.2.1.2	-------------------------------NOTE------------------------------- Not required to be performed if OPDMS was monitoring parameters upon exceeding 75% RTP. --- Verify $F_Q^W(Z)$ within limits.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP
SR 3.2.1.3	-------------------------------NOTE------------------------------- Not required to be performed until 24 hours after OPDMS not monitoring parameters. --- Verify $F_Q^C(Z)$ within limit.	Once within 12 hours after achieving equilibrium conditions after exceeding, by ≥ 10% RTP, the THERMAL POWER at which $F_Q^C(Z)$ was last verified <u>AND</u> 31 effective full power days (EFPD) thereafter

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.2.1.4	-------------------------------NOTES---------------------------- 1. Not required to be performed until 24 hours after OPDMS not monitoring parameters. 2. If $F_Q^W(Z)$ measurements indicate maximum over z$F_Q^C(Z)$ has increased since the previous evaluation of $F_Q^C(Z)$: a. Increase $F_Q^W(Z)$ by the greater of a factor of 1.02 or an appropriate factor specified in the COLR and reverify $F_Q^W(Z)$ is within limits; or b. Repeat SR 3.2.1.4 once per 7 EFPD until two successive flux maps indicate maximum over z$F_Q^C(Z)$ has not increased. --	
	Verify $F_Q^W(Z)$ within limits.	Once within 12 hours after achieving equilibrium conditions after exceeding, by ≥ 10% RTP, the THERMAL POWER at which $F_Q^W(Z)$ was last verified <u>AND</u> 31 EFPD thereafter

3.2 POWER DISTRIBUTION LIMITS

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

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

APPLICABILITY: MODE 1 with THERMAL POWER ≥ 25% RTP and with On-line Power Distribution Monitoring System (OPDMS) not monitoring parameters.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ------------NOTE------------ Required Actions A.2 and A.3 must be completed whenever Condition A is entered. -------------------------------- $F^N_{\Delta H}$ not within limits.	A.1.1 Restore $F^N_{\Delta H}$ to within limit.	4 hours
	<u>OR</u>	
	A.1.2.1 Reduce THERMAL POWER to < 50% RTP.	4 hours
	<u>AND</u>	
	A.1.2.2 Reduce Overpower ΔT trip setpoints to ≤ 55% RTP.	72 hours
	<u>AND</u>	
	A.2 Perform SR 3.2.2.1.	24 hours
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	--------------NOTE------------- THERMAL POWER does not have to be reduced to comply with this Required Action. ----------------------------------- Perform SR 3.2.2.1.	Prior to THERMAL POWER exceeding 50% RTP <u>AND</u> Prior to THERMAL POWER exceeding 75% RTP <u>AND</u> 24 hours after THERMAL POWER reaching ≥ 95% RTP
B. Required Action and associated Completion Time not met.	B.1	Reduce THERMAL POWER to < 25% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	-------------------------------NOTE-------------------------------- Not required to be performed if OPDMS was monitoring parameters upon exceeding 75% RTP. -- Verify $F^N_{\Delta H}$ within limits specified in the COLR.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP
SR 3.2.2.2	--------------------------------NOTE-------------------------------- Not required to be performed until 24 hours after OPDMS not monitoring parameters -- Verify $F^N_{\Delta H}$ within limits specified in the COLR.	31 effective full power days

3.2 POWER DISTRIBUTION LIMITS

3.2.3 AXIAL FLUX DIFFERENCE (AFD) (Constant Axial Offset Control (CAOC) Methodology)

LCO 3.2.3 The AFD:

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

b. May deviate outside the target band with THERMAL POWER $< 90\%$ RTP, but $\geq 50\%$ RTP, provided AFD is within the acceptable operation limits specified in the COLR and cumulative penalty deviation time is ≤ 1 hour during the previous 24 hours.

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

---NOTES---

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

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

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

4. A total of 16 hours of operation may be accumulated with AFD outside the target band without penalty deviation time during surveillance of Power Range Neutron Flux channels in accordance with SR 3.3.1.4, provided AFD is maintained within acceptable operation limits.

APPLICABILITY: MODE 1 with THERMAL POWER $> 15\%$ RTP and with the On-Line Power Distribution Monitoring System (OPDMS) not monitoring parameters.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. THERMAL POWER ≥ 90% RTP. <u>AND</u> AFD not within target band.	A.1	Restore AFD to within target band.	15 minutes
B. Required Action and associated Completion Time of Condition A not met.	B.1	Reduce THERMAL POWER to < 90% RTP.	15 minutes
C. ------------NOTE------------ Required Action C.1 must be completed whenever Condition C is entered. -------------------------------- THERMAL POWER < 90% and ≥ 50% RTP with cumulative penalty deviation time > 1 hour during the previous 24 hours. <u>OR</u> THERMAL POWER < 90% and ≥ 50% RTP with AFD not within acceptable operation limits.	C.1	Reduce THERMAL POWER < 50% RTP.	30 minutes
D. Required Action and associated Completion Time of Condition C not met.	D.1	Reduce THERMAL POWER to ≤ 15% RTP.	9 hours

SURVEILLANCE REQUIREMENTS

---NOTE---
Not required to be performed until 7 days after the last verification of OPDMS parameters.

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify AFD within limits for each OPERABLE excore channel.	7 days
SR 3.2.3.2	Update the target flux difference.	Once within 31 effective full power days (EFPD) after each refueling <u>AND</u> 31 EFPD thereafter
SR 3.2.3.3	------------------------------NOTE--------------------------------- The initial target flux difference after each refueling may be determined from design predictions. --- Determine, by measurement, the target flux difference.	Once within 31 EFPD after each refueling <u>AND</u> 92 EFPD thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.4 QUADRANT POWER TILT RATIO (QPTR)

LCO 3.2.4 The QPTR shall be ≤ 1.02.

APPLICABILITY: MODE 1 with THERMAL POWER > 50% RTP and with the On-Line Power Distribution Monitoring System (OPDMS) not monitoring parameters.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. QPTR not within limit.	A.1 Reduce THERMAL POWER ≥ 3% from RTP for each 1% of QPTR > 1.00.	2 hours after each QPTR determination
	<u>AND</u>	
	A.2 Perform SR 3.2.4.1.	Once per 12 hours
	<u>AND</u>	
	A.3 Perform SR 3.2.1.1 and SR 3.2.2.1.	24 hours after achieving equilibrium conditions from a THERMAL POWER reduction per Required Action A.1 <u>AND</u> Once per 7 days thereafter
	<u>AND</u>	

ACTIONS (continued)

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

-----NOTE-----
Not required to be performed until 12 hours after the last verification of OPDMS parameters.

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	-----NOTES----- 1. With one Power Range Neutron Flux channel inoperable and THERMAL POWER < 75% RTP, the remaining three Power Range Neutron Flux channels can be used for calculating QPTR. 2. SR 3.2.4.2 may be performed in lieu of this Surveillance. ----- Verify QPTR within limit by calculation.	7 days
SR 3.2.4.2	-----NOTE----- Not required to be performed until 12 hours after one or more Power Range Neutron Flux channels are inoperable with THERMAL POWER ≥ 75% RTP. ----- Verify QPTR is within limit using a minimum of four symmetric pairs of fixed incore detectors.	12 hours

3.2 POWER DISTRIBUTION LIMITS

3.2.5 On-Line Power Distribution Monitoring System (OPDMS)-Monitored Parameters

LCO 3.2.5 The following parameters shall not exceed their operating limits as specified in the COLR:

a. Peak Linear Heat Rate;

b. $F^N_{\Delta H}$;

c. departure from nucleate boiling ratio (DNBR); and

d. SDM.

APPLICABILITY: MODE 1 with THERMAL POWER ≥ 25% RTP and with OPDMS monitoring parameters a, b, and c,
MODE 1 with OPDMS monitoring parameter d,
MODE 2 with k_{eff} ≥ 1.0 and OPDMS monitoring parameter d.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the parameters a, b, and c above not within limits.	A.1 Restore all parameters to within limits.	1 hour
B. Required Action and associated Completion Time of Condition A not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours
C. Parameter d above not within limits.	C.1 Initiate boration to restore SDM to within limits.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.5.1	Verify the parameters a, b, c, and d above to be within their limits.	24 hours

3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

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

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel inoperable.	A.1 Place inoperable channel in bypass or trip.	6 hours
B. One or more Functions with two channels inoperable.	B.1 Place one inoperable channel in bypass.	6 hours
	<u>AND</u>	
	B.2 Place one inoperable channel in trip.	6 hours
C. Required Action and associated Completion Time of Condition A or B not met. <u>OR</u> One or more Functions with three or more channels inoperable.	C.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s).	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.1-1.	D.1 Be in MODE 3.	6 hours
E. As required by Required Action C.1 and referenced in Table 3.3.1-1.	E.1 Reduce THERMAL POWER to < P-10.	6 hours

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	-------------------------------NOTES------------------------------ 1. Required to be met within 12 hours after reaching 15% RTP. 2. If the calorimetric heat balance is ≥ 15% RTP, and if the nuclear instrumentation channel indicated power is: a. lower than the calorimetric measurement by > 5% RTP, then adjust the nuclear instrumentation channel upward to match the calorimetric measurement. b. higher than the calorimetric measurement, then no adjustment is required. --- Compare results of calorimetric heat balance to nuclear instrument channel output.	24 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2	-------------------------------NOTES------------------------------- 1. Adjust the conversion factor, ΔT°, in the ΔT power calculation ($q_{\Delta T}$) if absolute difference between $q_{\Delta T}$ and the calorimetric measurement is > 3% RTP. 2. Required to be met within 12 hours after reaching 50% RTP. 3. If the calorimetric heat balance is < 70% RTP, and if $q_{\Delta T}$ is: a. lower than the calorimetric measurement by > 5%, then adjust ΔT° to match the calorimetric measurement. b. higher than the calorimetric measurement, then no adjustment is required. --- Compare results of calorimetric heat balance to the ΔT power calculation ($q_{\Delta T}$) output.	24 hours
SR 3.3.1.3	-------------------------------NOTES------------------------------- 1. Adjust nuclear instrument channel in PMS if absolute difference is ≥ 1.5% AFD. 2. Required to be met within 24 hours after reaching 20% RTP. --- Compare results of the incore detector measurements to nuclear instrument channel AXIAL FLUX DIFFERENCE.	31 effective full power days (EFPD)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.4	-------------------------------NOTE------------------------------- Required to be met within 24 hours after reaching 50% RTP. -- Calibrate excore channels to agree with incore detector measurements.	92 EFPD
SR 3.3.1.5	-------------------------------NOTE------------------------------- This Surveillance shall include verification that the time constants are adjusted to within limits. -- Perform CHANNEL CALIBRATION in accordance with Setpoint Program.	24 months
SR 3.3.1.6	-------------------------------NOTE------------------------------- Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION in accordance with Setpoint Program.	24 months
SR 3.3.1.7	-------------------------------NOTE------------------------------- Verification of setpoint is not required. -- Perform TADOT.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	--------------------------------NOTE-------------------------------- Neutron detectors are excluded from response time testing. --- Verify RTS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. Power Range Neutron Flux				
a. High Setpoint	1,2	4	D	SR 3.3.1.1 SR 3.3.1.6 SR 3.3.1.8
b. Low Setpoint	1[(a)],2	4	D	SR 3.3.1.6 SR 3.3.1.8
2. Power Range Neutron Flux High Positive Rate	1,2	4	D	SR 3.3.1.6 SR 3.3.1.8
3. Overtemperature ΔT	1,2	4 (2 per loop)	D	SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.8
4. Overpower ΔT	1,2	4 (2 per loop)	D	SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.8
5. Pressurizer Pressure				
a. Low 2 Setpoint	1[(b)]	4	E	SR 3.3.1.5 SR 3.3.1.8
b. High 2 Setpoint	1,2	4	D	SR 3.3.1.5 SR 3.3.1.8
6. Pressurizer Water Level – High 3	1[(b)]	4	E	SR 3.3.1.5 SR 3.3.1.8
7. Reactor Coolant Flow – Low 2	1[(b)]	4 per hot leg	E	SR 3.3.1.2 SR 3.3.1.5 SR 3.3.1.8
8. Reactor Coolant Pump (RCP) Bearing Water Temperature – High 2	1,2	4 per RCP	D	SR 3.3.1.5 SR 3.3.1.8
9. RCP Speed – Low 2	1[(b)]	4 (1 per pump)	E	SR 3.3.1.5 SR 3.3.1.8

(a) Below the P-10 (Power Range Neutron Flux) interlocks.

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

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS
10. Steam Generator (SG) Narrow Range Water Level – Low 2	1,2	4 per SG	D	SR 3.3.1.5 SR 3.3.1.8
11. Steam Generator (SG) Narrow Range Water Level – High 3	1,2[c]	4 per SG	D	SR 3.3.1.5 SR 3.3.1.8
12. Passive Residual Heat Removal Actuation	1,2	4 per valve	D	SR 3.3.1.7 SR 3.3.1.8

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

3.3 INSTRUMENTATION

3.3.2 Reactor Trip System (RTS) Source Range Instrumentation

LCO 3.3.2 Four channels of RTS Source Range Neutron Flux – High Setpoint instrumentation shall be OPERABLE.

APPLICABILITY: MODE 2 with Intermediate Range Neutron Flux below the P-6 interlock,
MODES 3, 4, and 5 with Plant Control System capable of rod withdrawal or one or more rods not fully inserted.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable in MODE 2.	A.1 Place inoperable channel in bypass or trip.	2 hours
B. Two channels inoperable in MODE 2.	B.1 Place one inoperable channel in bypass.	2 hours
	<u>AND</u>	
	B.2 Place one inoperable channel in trip.	2 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Suspend positive reactivity additions that could result in a loss of required SDM.	Immediately
D. One or two channels inoperable in MODE 3, 4, or 5.	D.1 Restore three of four channels to OPERABLE status.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Required Action and associated Completion Time of Condition D not met.	E.1	Initiate action to fully insert all rods.	1 hour
	AND		
	E.2	Place the Plant Control System in a condition incapable of rod withdrawal.	1 hour
F. Three or more channels inoperable.	F.1	Open reactor trip breakers (RTBs).	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2	-------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION in accordance with Setpoint Program.	24 months
SR 3.3.2.3	-------------------------------NOTE------------------------------ Neutron detectors are excluded from response time testing. --- Verify RTS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

3.3 INSTRUMENTATION

3.3.3 Reactor Trip System (RTS) Intermediate Range Instrumentation

LCO 3.3.3 Four channels of RTS Intermediate Range Neutron Flux – High Instrumentation shall be OPERABLE.

APPLICABILITY: MODE 1 with Power Range Neutron Flux below the P-10 interlock, MODE 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable with THERMAL POWER ≥ P-6.	A.1 Place one inoperable channel in bypass or trip.	2 hours
	OR	
	A.2 Reduce THERMAL POWER to < P-6.	2 hours
	OR	
	A.3 Increase THERMAL POWER to > P-10.	2 hours
B. Two channels inoperable with THERMAL POWER ≥ P-6.	B.1.1 Place one inoperable channel in bypass.	2 hours
	AND	
	B.1.2 Place one inoperable channel in trip.	2 hours
	OR	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Reduce THERMAL POWER to < P-6. <u>OR</u> B.3 Increase THERMAL POWER to > P-10.	2 hours 2 hours
C. One or two channels inoperable with THERMAL POWER < P-6.	C.1 Restore three of four channels to OPERABLE status.	Prior to increasing THERMAL POWER to > P-6
D. Three or more channels inoperable.	D.1 Suspend positive reactivity additions that could result in a loss of required SDM. <u>AND</u> D.2 Reduce THERMAL POWER to < P-6. <u>AND</u> D.3 Be in MODE 3.	Immediately 2 hours 7 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	-----------------------------NOTE---------------------------------- Not Required to be met in MODE 1. --- Perform CHANNEL CHECK.	 12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.3.2	--------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION in accordance with Setpoint Program.	24 months
SR 3.3.3.3	--------------------------------NOTE------------------------------ Neutron detectors are excluded from response time testing. --- Verify RTS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

3.3 INSTRUMENTATION

3.3.4 Reactor Trip System (RTS) Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.4 The RTS ESFAS instrumentation for each Function in Table 3.3.4-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.4-1.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or two divisions inoperable in MODE 1 or 2.	A.1 Restore three of four divisions to OPERABLE status.	6 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> One or more Functions with three or more divisions inoperable in MODE 1 or 2.	B.1 Be in MODE 3.	6 hours
C. One or more Functions with one or two divisions inoperable in MODE 3, 4, or 5.	C.1 Restore three of four divisions to OPERABLE status.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met. OR One or more Functions with three or more divisions inoperable in MODE 3, 4 or 5.	D.1 Initiate action to fully insert all rods. AND D.2 Place the Plant Control System in a condition incapable of rod withdrawal.	1 hour 1 hour

SURVEILLANCE REQUIREMENTS

---NOTE---

Refer to Table 3.3.4-1 to determine which RTS ESFAS Function the SR applies.

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Verify RTS RESPONSE TIME is within limit.	24 months on a STAGGERED TEST BASIS

Table 3.3.4-1 (page 1 of 1)
Reactor Trip System Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED DIVISIONS	SURVEILLANCE REQUIREMENTS
1. Safeguards Actuation Input from Engineered Safety Feature Actuation System – Automatic	1,2	4	SR 3.3.4.1
2. Automatic Depressurization System Stages 1, 2, and 3 Actuation Input from Engineered Safety Feature Actuation System – Automatic	1,2,3[(a)],4[(a)],5[(a)]	4	None
3. Core Makeup Tank Actuation Input from Engineered Safety Feature Actuation System – Automatic	1,2,3[(a)],4[(a)],5[(a)]	4	None

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

3.3 INSTRUMENTATION

3.3.5 Reactor Trip System (RTS) Manual Actuation

LCO 3.3.5 The RTS manual actuation 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 Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one manual actuation channel inoperable.	A.1 Restore manual actuation channel to OPERABLE status.	48 hours
B. Required Action and associated Completion Time of Condition A not met in MODE 1 or 2. <u>OR</u> One or more Functions with two manual actuation channels inoperable in MODE 1 or 2.	B.1 Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met in MODE 3, 4, or 5. OR One or more Functions with two manual actuation channels inoperable in MODE 3, 4, or 5.	C.1 Initiate action to fully insert all rods. AND C.2 Place the Plant Control System in a condition incapable of rod withdrawal.	1 hour 1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	--------------------------------NOTE------------------------------ Verification of setpoint is not required. --- Perform TADOT.	 24 months

Table 3.3.5-1 (page 1 of 1)
Reactor Trip System Manual Actuation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS
1. Manual Reactor Trip	1,2,3[(a)],4[(a)],5[(a)]	2
2. Safeguards Actuation Input from Engineered Safety Feature Actuation System – Manual	1,2	2
3. Automatic Depressurization System Stages 1, 2, and 3 Actuation Input from Engineered Safety Feature Actuation System – Manual	1,2,3[(a)],4[(a)],5[(a)]	2 switch sets
4. Core Makeup Tank Actuation Input from Engineered Safety Feature Actuation System – Manual	1,2,3[(a)],4[(a)],5[(a)]	2

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

3.3 INSTRUMENTATION

3.3.6 Reactor Trip System (RTS) Automatic Trip Logic

LCO 3.3.6 Four divisions of RTS automatic trip logic shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5 with Plant Control System capable of rod withdrawal or one or more rods not fully inserted.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or two divisions inoperable in MODE 1 or 2.	A.1	Restore three of four divisions to OPERABLE status.	6 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Three or more divisions inoperable in MODE 1 or 2.	B.1	Be in MODE 3.	6 hours
C. One or two divisions inoperable in MODE 3, 4, or 5.	C.1	Restore three of four divisions to OPERABLE status.	48 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met. OR Three or more divisions inoperable in MODE 3, 4, or 5.	D.1 Initiate action to fully insert all rods. AND D.2 Place the Plant Control System in a condition incapable of rod withdrawal.	1 hour 1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
None	

3.3 INSTRUMENTATION

3.3.7 Reactor Trip System (RTS) Trip Actuation Devices

LCO 3.3.7 Four divisions of RTS trip actuation devices for the following Functions shall be OPERABLE:

a. Reactor Trip Breakers (RTBs); and

b. Undervoltage and Shunt Trip Mechanisms on in-service RTBs.

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5 with Plant Control System capable of rod withdrawal or one or more rods not fully inserted.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both Functions within one division inoperable.	A.1 Open affected RTB(s) in inoperable division.	8 hours
B. One or both Functions within two divisions inoperable.	B.1 Restore one division to OPERABLE status.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1 or 2. OR One or both Functions within three or more divisions inoperable in MODE 1 or 2.	C.1 Be in MODE 3.	6 hours
D. Required Action and associated Completion Time of Condition A or B not met in MODE 3, 4, or 5. OR One or both Functions within three or more divisions inoperable in MODE 3, 4, or 5.	D.1 Initiate action to fully insert all rods. AND D.2 Place the Plant Control System in a condition incapable of rod withdrawal.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) on both reactor trip breakers in one division.	92 days on a STAGGERED TEST BASIS

3.3 INSTRUMENTATION

3.3.8 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.8 The ESFAS instrumentation channels for each Function in Table 3.3.8-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.8-1.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel inoperable.	A.1 Place inoperable channel in bypass or trip.	6 hours
B. One or more Functions with two channels inoperable.	B.1 Place one inoperable channel in bypass. <u>AND</u> B.2 Place one inoperable channel in trip.	6 hours 6 hours
C. Required Action and associated Completion Time of Condition A or B not met. <u>OR</u> One or more Functions with three or more channels inoperable.	C.1 Enter the Condition referenced in Table 3.3.8-1 for the channel(s).	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.8-1.	D.1 Be in MODE 3.	6 hours
E. As required by Required Action C.1 and referenced in Table 3.3.8-1.	E.1 Be in MODE 3.	6 hours
	AND	
	E.2 Reduce Reactor Coolant System (RCS) pressure below P-11 (Pressurizer Pressure) interlock.	12 hours
	AND	
	E.3 Establish RCS boron concentration greater than or equal to that necessary to meet the SDM requirements at an RCS temperature of 200°F.	12 hours
F. As required by Required Action C.1 and referenced in Table 3.3.8-1.	F.1 Be in MODE 3.	6 hours
	AND	
	F.2 Be in MODE 4 with the RCS cooling provided by the Normal Residual Heat Removal System (RNS).	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
G. As required by Required Action C.1 and referenced in Table 3.3.8-1.	G.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	G.2	Establish RCS boron concentration greater than or equal to that necessary to meet the SDM requirements at an RCS temperature of 200°F.	12 hours
	<u>AND</u>		
	G.3	Block Steamline/Feedwater isolation and Safeguards actuations.	1 hour from discovery of RCS boron concentration greater than or equal to that necessary to meet SDM at an RCS temperature of 200°F while in MODE 3
H. As required by Required Action C.1 and referenced in Table 3.3.8-1.	H.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	H.2	Be in MODE 5.	36 hours
I. As required by Required Action C.1 and referenced in Table 3.3.8-1.	I.1	Declare affected isolation valve(s) inoperable.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
J. As required by Required Action C.1 and referenced in Table 3.3.8-1.	J.1	Be in MODE 5.	37 hours with three or more inoperable channels <u>AND</u> 180 hours
	<u>AND</u>		
	J.2	Initiate action to establish RCS VENTED.	180 hours
K. As required by Required Action C.1 and referenced in Table 3.3.8-1.	K.1	Suspend positive reactivity additions.	Immediately
	<u>AND</u>		
	K.2	Initiate action to open RCS pressure boundary and establish a pressurizer level ≥ 20%.	Immediately
L. As required by Required Action C.1 and referenced in Table 3.3.8-1.	L.1	Suspend positive reactivity additions.	Immediately
	<u>AND</u>		
	L.2	Initiate action to remove the upper internals.	Immediately
M. As required by Required Action C.1 and referenced in Table 3.3.8-1.	M.1	Suspend positive reactivity additions.	Immediately
	<u>AND</u>		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
M. (continued)	M.2	Be in MODE 5.	12 hours
	<u>AND</u>		
	M.3	Initiate action to establish a pressurizer level ≥ 20% with the RCS pressure boundary intact.	12 hours
N. As required by Required Action C.1 and referenced in Table 3.3.8-1.	N.1	Suspend positive reactivity additions.	Immediately
	<u>AND</u>		
	N.2	Initiate action to establish water level ≥ 23 ft above the top of the reactor vessel flange.	Immediately
O. As required by Required Action C.1 and referenced in Table 3.3.8-1.	O.1	Declare affected isolation valve(s) inoperable.	Immediately
	<u>AND</u>		
	O.2	Be in MODE 3.	6 hours
P. As required by Required Action C.1 and referenced in Table 3.3.8-1.	P.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	P.2	Be in MODE 5.	36 hours
	<u>AND</u>		
	P.3	Open a containment air flow path ≥ 6 inches in diameter.	44 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Q. As required by Required Action C.1 and referenced in Table 3.3.8-1.	Q.1 Be in MODE 3	6 hours
	<u>AND</u>	
	Q.2 Be in MODE 4 with at least one cold leg temperature ≤ 275°F.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	-------------------------------NOTE-------------------------------- Only required to be met for Source Range Neutron Flux Doubling. --- Perform CHANNEL CHECK.	12 hours
SR 3.3.8.2	-------------------------------NOTES------------------------------ 1. This Surveillance shall include verification that the time constants are adjusted to within limits. 2. Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION in accordance with Setpoint Program.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.3	-------------------------------NOTES------------------------------- 1. Not applicable to Function 1.a. 2. Neutron detectors are excluded from response time testing. -- Verify ESF RESPONSE TIME is within limit.	24 months on a STAGGERED TEST BASIS

Table 3.3.8-1 (page 1 of 2)
Engineered Safeguards Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS
1. Containment Pressure			
a. – Low	1,2,3,4,5[(a)],6[(a)]	4	P
b. – Low 2	1,2,3,4,5[(a)],6[(a)]	4	P
2. Containment Pressure – High 2	1,2,3,4	4	H
3. Containment Radioactivity – High	1,2,3,4[(b)]	4	I
4. Containment Radioactivity – High 2	1,2,3	4	I
5. Pressurizer Pressure – Low 3	1,2,3[(c) (l)]	4	E
6. Pressurizer Water Level – Low	1,2	4	D
7. Pressurizer Water Level – Low 2	1,2,3,4[(b)]	4	F
	4[(d)], 5[(e)]	4	J
8. Pressurizer Water Level – High	1,2,3	4	I
9. Pressurizer Water Level – High 2	1,2,3,4[(f)]	4	I
10. Pressurizer Water Level – High 3	1,2,3,4[(f)]	4	Q
11. RCS Cold Leg Temperature (T_{cold}) – Low 2	1,2,3[(c) (l)]	4 per loop	E
12. RCS Coolant Average Temperature (T_{avg}) – Low	1,2	4	D
13. RCS Coolant Average Temperature (T_{avg}) – Low 2	1,2	4	D
14. RCS Wide Range Pressure – Low	1,2,3,4	4	H
	5	4	K
	6[(g)]	4	L

(a) Without an open containment air flow path ≥ 6 inches in diameter.

(b) With the RCS not being cooled by the Normal Residual Heat Removal System (RNS).

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

(d) With the RCS being cooled by the RNS.

(e) With RCS not VENTED and CMT actuation on Pressurizer Water Level – Low 2 not blocked.

(f) With all four cold leg temperatures > 275 °F.

(g) With upper internals in place

(l) Below the P-11 (Pressurizer Pressure) interlock and RCS boron concentration is less than that necessary to meet the SDM requirements at an RCS temperature of 200°F.

Table 3.3.8-1 (page 2 of 2)
Engineered Safeguards Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS
15. Core Makeup Tank (CMT) Level – Low 3	1,2,3,4[(b)]	4 per tank	F
	4[(d)], 5[(h)]	4 per OPERABLE tank	J
16. CMT Level – Low 6	1,2,3,4[(b)]	4 per tank	F
	4[(d)], 5[(h)]	4 per OPERABLE tank	J
17. Source Range Neutron Flux Doubling	2[(i)],3[(i)],4[(j)],5[(j)]	4	I
18. IRWST Lower Narrow Range Level – Low 3	1,2,3,4[(b)]	4	F
	4[(d)],5	4	M
	6[(g)]	4	N
19. Reactor Coolant Pump Bearing Water Temperature – High 2	1,2,3,4	4 per RCP	O
20. SG Narrow Range Water Level – Low 2	1,2,3,4[(b)]	4 per SG	F
21. SG Wide Range Water Level – Low 2	1,2,3,4[(b)]	4 per SG	F
22. SG Narrow Range Water Level – High	1,2,3,4	4 per SG	I
23. SG Narrow Range Water Level – High 3	1,2	4 per SG	D
	3,4	4 per SG	I
24. Steam Line Pressure – Low 2	1,2,3[(c) (l) (m)]	4 per steam line	G
25. Steam Line Pressure – Negative Rate – High	3[(k)]	4 per steam line	I

(b) With the RCS not being cooled by the Normal Residual Heat Removal System (RNS).

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

(d) With the RCS being cooled by the RNS.

(g) With upper internals in place

(h) With RCS not VENTED.

(i) With unborated water source flow paths not isolated except when critical or except during intentional approach to criticality.

(j) With unborated water source flow paths not isolated.

(k) Below the P-11 (Pressurizer Pressure) interlock when Steam Line Pressure – Low 2 is blocked.

(l) Below the P-11 (Pressurizer Pressure) interlock and RCS boron concentration is less than that necessary to meet the SDM requirements at an RCS temperature of 200°F.

(m) Below the P-11 (Pressurizer Pressure) interlock when Steam Line Pressure – Low 2 is not blocked.

3.3 INSTRUMENTATION

3.3.9 Engineered Safety Feature Actuation System (ESFAS) Manual Initiation

LCO 3.3.9 The ESFAS manual initiation channels for each Function in Table 3.3.9-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.9-1.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ------------NOTE------------ Not applicable to Functions 1, 6, 7, 8, 12, and 13 in MODE 5 or 6. -------------------------------- One or more Functions with one channel inoperable.	A.1 Restore channel to OPERABLE status.	48 hours
B. ------------NOTE------------ Only applicable to Functions 1, 6, 7, 8, 12, and 13 in MODE 5 or 6. -------------------------------- One or more Functions with one channel inoperable.	B.1 Restore channel to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR One or more Functions with two channels inoperable.	C.1	Enter the Condition referenced in Table 3.3.9-1 for the channel(s).	Immediately
D. As required by Required Action C.1 and referenced in Table 3.3.9-1.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 4 with the Reactor Coolant System (RCS) cooling provided by the Normal Residual Heat Removal System (RNS).	24 hours
E. As required by Required Action C.1 and referenced in Table 3.3.9-1.	E.1	Be in MODE 3.	6 hours
	AND		
	E.2	Be in MODE 5.	36 hours
F. As required by Required Action C.1 and referenced in Table 3.3.9-1.	F.1	Declare affected isolation valve(s) inoperable.	Immediately
G. As required by Required Action C.1 and referenced in Table 3.3.9-1.	G.1	Be in MODE 5.	12 hours
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
G. (continued)	G.2	Initiate action to establish RCS VENTED.	12 hours
H. As required by Required Action C.1 and referenced in Table 3.3.9-1.	H.1	Suspend positive reactivity additions.	Immediately
	<u>AND</u>		
	H.2	Initiate action to establish RCS VENTED and establish ≥ 20% pressurizer level.	Immediately
I. As required by Required Action C.1 and referenced in Table 3.3.9-1.	I.1	Suspend positive reactivity additions.	Immediately
	<u>AND</u>		
	I.2	Initiate action to remove the upper internals.	Immediately
J. As required by Required Action C.1 and referenced in Table 3.3.9-1.	J.1	Suspend positive reactivity additions.	Immediately
	<u>AND</u>		
	J.2	Be in MODE 5.	12 hours
	<u>AND</u>		
	J.3	Initiate action to establish a pressurizer level ≥ 20% with the RCS pressure boundary intact.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
K. As required by Required Action C.1 and referenced in Table 3.3.9-1.	K.1	Suspend positive reactivity additions.	Immediately
	<u>AND</u>		
	K.2	Initiate action to establish water level ≥ 23 ft above the top of the reactor vessel flange.	Immediately
L. As required by Required Action C.1 and referenced in Table 3.3.9-1.	L.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	L.2	Be in MODE 5.	36 hours
	<u>AND</u>		
	L.3	Open a containment air flow path ≥ 6 inches in diameter.	44 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	-------------------------------NOTE------------------------------- Verification of setpoint not required. -- Perform TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT).	24 months

Table 3.3.9-1 (page 1 of 2)
Engineered Safeguards Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS
1. Safeguards Actuation – Manual Initiation	1,2,3,4	2 switches	E
	5	2 switches	J
2. Core Makeup Tank (CMT) Actuation – Manual Initiation	1,2,3,4[(a)]	2 switches	D
	4[(b)],5[(c)]	2 switches	G
3. Containment Isolation – Manual Initiation	1,2,3,4	2 switches	E
4. Steam Line Isolation – Manual Initiation	1,2,3,4	2 switches	F
5. Feedwater Isolation – Manual Initiation	1,2,3,4	2 switches	F
6. ADS Stages 1, 2 and 3 Actuation – Manual Initiation	1,2,3,4	2 switch sets	E
	5[(c)]	2 switch sets	H
7. ADS Stage 4 Actuation – Manual Initiation	1,2,3,4	2 switch sets	E
	5	2 switch sets	H
	6[(d)]	2 switch sets	I
8. Passive Containment Cooling Actuation – Manual Initiation	1,2,3,4	2 switches	E
	5[(e)]	2 switches	J
	6[(e)]	2 switches	K
9. Passive Residual Heat Removal Heat Exchanger Actuation – Manual Initiation	1,2,3,4	2 switches	E
	5[(f)]	2 switches	G
10. Chemical and Volume Control System Makeup Isolation – Manual Initiation	1,2,3,4[(g)]	2 switches	F

(a) With the RCS not being cooled by the Normal Residual Heat Removal System (RNS).

(b) With the RCS being cooled by the RNS.

(c) With the RCS not VENTED.

(d) With upper internals in place.

(e) With decay heat > 7.0 MWt.

(f) With the RCS pressure boundary intact.

(g) With all four cold leg temperatures > 275°F.

Table 3.3.9-1 (page 2 of 2)
Engineered Safeguards Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS
11. Normal Residual Heat Removal System Isolation – Manual Initiation	1,2,3	2 switch sets	F
12. In-containment Refueling Water Storage Tank (IRWST) Injection Line Valve Actuation – Manual Initiation	1,2,3,4[(a)]	2 switch sets	D
	4[(b)],5	2 switch sets	J
	6	2 switch sets	K
13. IRWST Containment Recirculation Valve Actuation – Manual Initiation	1,2,3,4[(a)]	2 switch sets	D
	4[(b)],5	2 switch sets	J
	6	2 switch sets	K
14. SG Power Operated Relief Valve and Block Valve Isolation – Manual Initiation	1,2,3,4[(a)]	2 switches	D
15. Containment Vacuum Relief Valve Actuation – Manual Initiation	1,2,3,4,5[(h)],6[(h)]	2 switches	L

(a) With the RCS not being cooled by the Normal Residual Heat Removal System (RNS).

(b) With the RCS being cooled by the RNS.

(h) Without an open containment air flow path ≥ 6 inches in diameter.

3.3 INSTRUMENTATION

3.3.10 Engineered Safety Feature Actuation System (ESFAS) Reactor Coolant System (RCS) Hot Leg Level Instrumentation

LCO 3.3.10 The ESFAS RCS Hot Leg Level instrumentation channels for each Function in Table 3.3.10-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.10-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Place inoperable channel in bypass. <u>AND</u> A.2 --------------NOTE-------------- Only applicable to Function 1. ------------------------------------ Continuously monitor hot leg level.	6 hours 6 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Enter the Condition referenced in Table 3.3.10-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action B.1 and referenced in Table 3.3.10-1.	C.1 Suspend positive reactivity additions.	Immediately
	AND	
	C.2 Initiate action to establish a pressurizer level above the P-12 (Pressurizer Level) interlock.	Immediately
D. As required by Required Action B.1 and referenced in Table 3.3.10-1.	-------------------NOTE-------------------- Flow path(s) may be unisolated intermittently under administrative controls. ---	
	D.1.1 Isolate affected flow paths.	24 hours
	AND	
	D.1.2.1 Isolate each affected flow path by use of at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	7 days
	OR	
	D.1.2.2 Verify each affected flow path is isolated.	Once per 7 days
	OR	
	D.2 Initiate action to establish a pressurizer level above the P-12 (Pressurizer Level) interlock.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. As required by Required Action B.1 and referenced in Table 3.3.10-1.	E.1	Initiate action to establish water level ≥ 23 ft above the top of the reactor vessel flange.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.10.1	-------------------------------NOTE------------------------------- This Surveillance shall include verification that the time constants are adjusted to within limits. --- Perform CHANNEL CALIBRATION in accordance with Setpoint Program.	24 months
SR 3.3.10.2	Verify ESF RESPONSE TIME is within limit.	24 months on a STAGGERED TEST BASIS

Table 3.3.10-1 (page 1 of 1)
Engineered Safeguards Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS
1. Hot Leg Level – Low 4	5[(a)],6[(b)]	1 per loop	C
2. Hot Leg Level – Low 2	5[(c)]	1 per loop	D
	6[(d)]	1 per loop	E

(a) With CMT actuation on Pressurizer Water Level – Low 2 blocked.

(b) With upper internals in place and with CMT actuation on Pressurizer Water Level – Low 2 blocked.

(c) Below the P-12 (Pressurizer Level) interlock.

(d) With the water level < 23 ft above the top of the reactor vessel flange.

3.3 INSTRUMENTATION

3.3.11 Engineered Safety Feature Actuation System (ESFAS) Startup Feedwater Flow Instrumentation

LCO 3.3.11 Two channels of ESFAS Startup Feedwater Flow – Low 2 instrumentation for each startup feedwater line shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with the Reactor Coolant System (RCS) not being cooled by the Normal Residual Heat Removal System (RNS).

ACTIONS

---NOTE---

Separate Condition entry is allowed for each startup feedwater line.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more startup feedwater lines with one channel inoperable.	A.1 Place channel in trip.	6 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> One or more startup feedwater lines with two channels inoperable.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4 with the RCS cooling provided by the RNS.	6 hours 24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.11.1	--------------------------------NOTE------------------------------- This Surveillance shall include verification that the time constants are adjusted to within limits. --- Perform CHANNEL CALIBRATION in accordance with Setpoint Program.	24 months
SR 3.3.11.2	Verify ESF RESPONSE TIME is within limit.	24 months on a STAGGERED TEST BASIS

3.3 INSTRUMENTATION

3.3.12 Engineered Safety Feature Actuation System (ESFAS) Reactor Trip Initiation

LCO 3.3.12 Three ESFAS Reactor Trip (P-4) divisions shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required division inoperable.	A.1 Restore required division to OPERABLE status.	6 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two or three required divisions inoperable.	B.1 Declare affected isolation valve(s) inoperable. <u>AND</u> B.2 Be in MODE 3. <u>AND</u> B.3 Be in MODE 4.	Immediately 6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.12.1	Perform TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT).	24 months

3.3 INSTRUMENTATION

3.3.13 Engineered Safety Feature Actuation System (ESFAS) Main Control Room Isolation, Air Supply Initiation, and Electrical Load De-energization

LCO 3.3.13 The ESFAS Main Control Room (MCR) Isolation, Air Supply Initiation, and Electrical Load De-energization instrumentation channels for each Function in Table 3.3.13-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.13-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.13-1 for the channel(s).	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.13-1.	B.1 Verify one channel is OPERABLE. <u>AND</u> B.2 Verify MCR Isolation, Air Supply Initiation, and Electrical Load De-energization manual controls are functional.	Immediately 72 hours
C. As required by Required Action A.1 and referenced in Table 3.3.13-1.	C.1 Verify one channel is OPERABLE. <u>AND</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Restore channel to OPERABLE status.	72 hours
D. Required Action and associated Completion Time of Condition B not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours
E. Required Action and associated Completion Time of Condition C not met.	E.1 Suspend movement of irradiated fuel assemblies.	Immediately
F. ------------NOTE------------ Separate Condition entry is allowed for each channel. --------------------------------- As required by Required Action A.1 and referenced in Table 3.3.13-1.	F.1 Place inoperable channel in trip. OR F.2.1 Verify actuation capability is maintained. AND F.2.2 Restore channel to OPERABLE status.	6 hours 6 hours 7 days
G. Required Action and associated Completion Time of Condition F not met.	G.1 De-energize both MCR air supply radiation monitor sample pumps.	6 hours

SURVEILLANCE REQUIREMENTS

---NOTE---

Refer to Table 3.3.13-1 to determine which SRs apply for each ESFAS Main Control Room Isolation, Air Supply Initiation, and Electrical Load De-energization Function.

SURVEILLANCE		FREQUENCY
SR 3.3.13.1	--------------------------------NOTE-------------------------------- This Surveillance shall include verification that the time constants are adjusted to within limits. -- Perform CHANNEL CALIBRATION in accordance with Setpoint Program.	 24 months
SR 3.3.13.2	Verify ESF RESPONSE TIME is within limit.	24 months on a STAGGERED TEST BASIS

Table 3.3.13-1 (page 1 of 1)
ESFAS Main Control Room Isolation, Air Supply Initiation,
and Electrical Load De-energization Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. Main Control Room Air Supply Iodine or Particulate Radiation – High 2	1[(a)],2[(a)],3[(a)],4[(a)]	2	B	SR 3.3.13.1 SR 3.3.13.2
	(b)[(a)]	2	C	SR 3.3.13.1 SR 3.3.13.2
2. Main Control Room Differential Pressure – Low	1,2,3,4	2	B	SR 3.3.13.1 SR 3.3.13.2
	(b)	2	C	SR 3.3.13.1 SR 3.3.13.2
3. Class 1E 24-Hour Battery Charger Undervoltage	1,2,3,4,5,(b)	2 per 24-hour battery charger	F	SR 3.3.13.1

(a) Not applicable for the Main Control Room Air Supply Iodine or Particulate Radiation – High 2 Function when the Main Control Room Envelope is isolated and the Main Control Room Emergency Habitability System is in operation.

(b) During movement of irradiated fuel assemblies.

3.3 INSTRUMENTATION

3.3.14 Engineered Safety Feature Actuation System (ESFAS) In-containment Refueling Water Storage Tank (IRWST) and Spent Fuel Pool Level Instrumentation

LCO 3.3.14 The ESFAS IRWST and Spent Fuel Pool Level instrumentation channels for each Function in Table 3.3.14-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.14-1.

ACTIONS

--NOTE--

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Spent Fuel Pool Level – Low 2 channel inoperable.	A.1 Place channel in trip.	6 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> One or more IRWST Wide Range Level – Low channels inoperable. <u>OR</u> Two or more Spent Fuel Pool Level – Low 2 channels inoperable.	-------------------NOTE-------------------- Penetration flow path(s) may be unisolated intermittently under administrative controls. --- B.1 Isolate affected penetration flow paths. <u>AND</u>	 24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.1 Isolate each affected penetration flow path by use of at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. OR B.2.2 Verify affected penetration flow paths are isolated.	7 days Once per 7 days
C. Required Action and associated Completion Time of Condition B not met.	C.1 Declare the IRWST inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.14.1	-------------------------------NOTE------------------------------- This Surveillance shall include verification that the time constants are adjusted to within limits. --- Perform CHANNEL CALIBRATION in accordance with Setpoint Program.	24 months
SR 3.3.14.2	Verify ESF RESPONSE TIME is within limit.	24 months on a STAGGERED TEST BASIS

Table 3.3.14-1 (page 1 of 1)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS
1. Spent Fuel Pool Level – Low 2	6[(a)]	3
2. IRWST Wide Range Level – Low	1,2,3,4	2

(a) With refueling cavity and spent fuel pool volumes in communication.

3.3 INSTRUMENTATION

3.3.15 Engineered Safety Feature Actuation System (ESFAS) Actuation Logic – Operating

LCO 3.3.15 Four divisions with one subsystem for each of the following Functions shall be OPERABLE:

a. Engineered Safety Features (ESF) Coincidence Logic; and

b. ESF Actuation.

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

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions within one division inoperable.	A.1 Restore division to OPERABLE status.	6 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> One or more Functions within two or more divisions inoperable.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.15.1	-------------------------------NOTE------------------------------- Only required to be met when all four cold leg temperatures are > 275°F. -- Verify pressurizer heater circuit breakers trip open on an actual or simulated actuation signal.	24 months
SR 3.3.15.2	Verify reactor coolant pump breakers trip open on an actual or simulated actuation signal.	24 months
SR 3.3.15.3	Verify main feedwater and startup feedwater pump breakers trip open on an actual or simulated actuation signal.	24 months
SR 3.3.15.4	-------------------------------NOTE------------------------------- Only required to be met in MODES 1 and 2. -- Verify auxiliary spray and purification line isolation valves actuate to the isolation position on an actual or simulated actuation signal.	24 months

3.3 INSTRUMENTATION

3.3.16 Engineered Safety Feature Actuation System (ESFAS) Actuation Logic – Shutdown

LCO 3.3.16 Four divisions with one subsystem for each of the following Functions shall be OPERABLE:

a. Engineered Safety Features (ESF) Coincidence Logic; and

b. ESF Actuation.

--NOTE--
Only the divisions necessary to support Main Control Room Isolation, Air Supply Initiation, and Electrical Load De-energization are required to be OPERABLE during movement of irradiated fuel assemblies when not in MODE 1, 2, 3, 4, 5, or 6.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions within one required division inoperable.	A.1 Restore required division to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met in MODE 5. OR One or more Functions within two or more divisions inoperable in MODE 5.	B.1	Suspend positive reactivity additions.	Immediately
	AND		
	B.2	Initiate action to open RCS pressure boundary and establish ≥ 20% pressurizer level.	Immediately
	AND		
	B.3	Initiate action to isolate the flow path from the demineralized water storage tank to the RCS by use of at least one closed and de-activated automatic valve or closed manual valve.	Immediately
C. Required Action and associated Completion Time of Condition A not met in MODE 6. OR One or more Functions within two or more divisions inoperable in MODE 6.	C.1	Suspend positive reactivity additions.	Immediately
	AND		
	C.2	Initiate action to establish water level ≥ 23 ft above the top of the reactor vessel flange.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies. <u>OR</u> One or more Functions within two or more required divisions inoperable during movement of irradiated fuel assemblies.	D.1 Suspend movement of irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.16.1	--------------------------------NOTE------------------------------- Only required to be met in MODE 5. --- Verify reactor coolant pump breakers trip open on an actual or simulated actuation signal.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.16.2	-------------------------------NOTES------------------------------- 1. Not required to be met in MODE 5 above the P-12 (Pressurizer Level) interlock. 2. Not required to be met in MODE 6 with water level ≥ 23 ft above the top of the reactor vessel flange. -- Verify Chemical and Volume Control System (CVS) letdown isolation valves actuate to the isolation position on an actual or simulated actuation signal.	24 months

3.3 INSTRUMENTATION

3.3.17 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.17 PAM instrumentation for each Function in Table 3.3.17.1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

--NOTES--

1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions within one required channel inoperable.	A.1	Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1	Initiate action in accordance with Specification 5.6.5.	Immediately
C. One or more Functions with two required channels inoperable.	C.1	Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1	Enter the Condition referenced in Table 3.3.17-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.17-1.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

---NOTE---
SR 3.3.17.1 applies only to Functions 1, 12, 17, 18, and 19 in Table 3.3.17-1. SR 3.3.17.2 applies to each PAM instrumentation Function in Table 3.3.17-1.

SURVEILLANCE		FREQUENCY
SR 3.3.17.1	-------------------------------NOTE------------------------------ Not required to be met for Function 1, Neutron Flux (Intermediate Range), in MODE 1. --- Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.17.2	-------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION.	24 months

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

FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION D.1
1. Neutron Flux (Intermediate Range)	2	E
2. Reactor Coolant System (RCS) Hot Leg Temperature (Wide Range)	2	E
3. RCS Cold Leg Temperature (Wide Range)	2	E
4. RCS Pressure (Wide Range)	2	E
5. RCS Subcooling	2	E
6. Containment Water Level	2	E
7. Containment Pressure	2	E
8. Containment Pressure (Extended Range)	2	E
9. Containment Area Radiation (High Range)	2	E
10. Pressurizer Level and Associated Reference Leg Temperature	2	E
11. In-Containment Refueling Water Storage Tank (IRWST) Wide Range Water Level	2	E
12. Passive Residual Heat Removal (PRHR) Heat Removal	2	E
13. Core Exit Temperature – Quadrant 1	2[a]	E
14. Core Exit Temperature – Quadrant 2	2[a]	E
15. Core Exit Temperature – Quadrant 3	2[a]	E
16. Core Exit Temperature – Quadrant 4	2[a]	E
17. Passive Containment Cooling System (PCS) Heat Removal	2	E
18. Penetration Flow Path Remotely Operated Containment Isolation Valve Position	2 per penetration flow path[b][c][d]	E
19. IRWST to Normal Residual Heat Removal System (RNS) Suction Valve Status	2	E
20. Pressurizer Pressure	2	E

(a) A channel consists of two thermocouples within a single division. Each quadrant contains two divisions. The minimum requirement is two OPERABLE thermocouples in each of the two divisions.

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

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

(d) Penetration Flow Path Remotely Operated Containment Isolation Valve Position applies to components that receive the ESF containment isolation signal (T signal).

3.3 INSTRUMENTATION

3.3.18 Remote Shutdown Workstation (RSW)

LCO 3.3.18 The RSW shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with Reactor Coolant System (RCS) average temperature (T_{avg}) ≥ 350°F.

ACTIONS

--NOTE--
LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RSW inoperable.	A.1 Restore RSW to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	B.2 Be in MODE 4 with T_{avg} < 350°F.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.18.1	Verify each required transfer switch is capable of performing the required function.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.18.2	Verify the RSW communicates indication and controls with Divisions A, B, C and D of the Protection and Safety Monitoring System (PMS).	24 months
SR 3.3.18.3	Verify the OPERABILITY of the RSW hardware and software.	24 months
SR 3.3.18.4	Perform TRIP ACTUATION DEVICE OPERATIONAL TEST (TADOT) of the reactor trip breaker open/closed indication.	24 months

3.3 INSTRUMENTATION

3.3.19 Diverse Actuation System (DAS) Manual Controls

LCO 3.3.19 The DAS manual controls for each Function in Table 3.3.19-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.19-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DAS manual controls inoperable.	A.1 Restore DAS manual controls to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met for inoperable DAS manual reactor trip control.	B.1 Perform SR 3.3.7.1.	Once per 31 days on a STAGGERED TEST BASIS
	<u>AND</u>	
	B.2 Restore all controls to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry
C. Required Action and associated Completion Time of Condition A not met for inoperable DAS manual actuation control other than reactor trip.	C.1 Restore all controls to OPERABLE status.	Prior to entering MODE 2 following next MODE 5 entry

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.19.1	-------------------------------NOTE------------------------------- Verification of setpoint not required. --- Perform TRIP ACTUATION DEVICE OPERATIONAL TEST (TADOT).	 24 months

Table 3.3.19-1 (page 1 of 1)
Diverse Actuation System Manual Controls

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CONTROLS
1. Reactor trip manual controls	1,2	2 switches
2. Passive Residual Heat Removal Heat Exchanger (PRHR HX) control and In-Containment Refueling Water Storage Tank (IRWST) gutter control valves	1,2,3,4,5[(a)]	2 switches
3. Core Makeup Tank (CMT) isolation valves	1,2,3,4,5[(a)]	2 switches
4. Automatic Depressurization System (ADS) Stage 1 valves	1,2,3,4,5[(a)]	2 switches
5. ADS Stage 2 valves	1,2,3,4,5[(a)]	2 switches
6. ADS Stage 3 valves	1,2,3,4,5[(a)]	2 switches
7. ADS Stage 4 valves	1,2,3,4,5,6[(c)]	2 switches
8. IRWST injection squib valves	1,2,3,4,5,6	2 switches
9. Containment recirculation valves	1,2,3,4,5,6	2 switches
10. Passive containment cooling drain valves	1,2,3,4,5[(b)],6[(b)]	2 switches
11. Selected containment isolation valves	1,2,3,4,5,6	2 switches

(a) With Reactor Coolant System (RCS) pressure boundary intact.

(b) With the reactor decay heat > 7.0 MWt.

(c) With upper internals in place.

3.3 INSTRUMENTATION

3.3.20 Automatic Depressurization System (ADS) and In-containment Refueling Water Storage Tank (IRWST) Injection Blocking Device

LCO 3.3.20 Four divisions of ADS and IRWST Injection Blocking Device channels for each Function in Table 3.3.20-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.20-1.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more divisions inoperable.	A.1	Unblock component interface module (CIM) in the affected division.	8 hours
B. Required Action and associated Completion Time not met.	B.1	Declare affected ADS and IRWST valves inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

--NOTE--
Refer to Table 3.3.20-1 to determine which SRs apply for each ADS and IRWST Injection Blocking Device Function.

SURVEILLANCE		FREQUENCY
SR 3.3.20.1	Verify each ADS and IRWST Injection Block switch is in the “unblock” position.	7 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.20.2	Perform CHANNEL CALIBRATION in accordance with Setpoint Program.	24 months
SR 3.3.20.3	Perform ACTUATION LOGIC TEST of ADS and IRWST Injection Blocking Devices.	24 months
SR 3.3.20.4	-------------------------------NOTE------------------------------- Verification of setpoint not required. --- Perform TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) of ADS and IRWST Injection Block manual switches.	24 months
SR 3.3.20.5	The following SRs of Specification 3.5.2, “Core Makeup Tanks (CMTs) – Operating,” are applicable for each CMT: SR 3.5.2.2 SR 3.5.2.5 SR 3.5.2.6	In accordance with applicable SRs

Table 3.3.20-1 (page 1 of 1)
ADS and IRWST Injection Blocking Device

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER DIVISION	SURVEILLANCE REQUIREMENTS
1. Core Makeup Tank Level for Automatic Unblocking[(a)]	1,2,3,4[(b)]	2	SR 3.3.20.2 SR 3.3.20.3 SR 3.3.20.5
2. ADS and IRWST Injection Block Switches for Manual Unblocking	1,2,3,4[(b)]	1	SR 3.3.20.3 SR 3.3.20.4
	4[(c)],5,6	1	SR 3.3.20.1 SR 3.3.20.3 SR 3.3.20.4

(a) Not required to be OPERABLE with associated divisional ADS and IRWST Injection Block switch in the “unblock” position.

(b) With the Reactor Coolant System (RCS) not being cooled by the Normal Residual Heat Removal System (RNS).

(c) With the RCS being cooled by the RNS.

3.4 REACTOR COOLANT SYSTEM (RCS)

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

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, RCS average temperature, and RCS total flow rate shall be within the limits specified below:

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

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

c. RCS total flow rate ≥ 301,670 gpm and greater than or equal to the limit specified in the COLR.

APPLICABILITY: MODE 1.

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

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

b. THERMAL POWER step > 10% RTP.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure is greater than or equal to the limit specified in the COLR.	12 hours
SR 3.4.1.2	Verify RCS average temperature is less than or equal to the limit specified in the COLR.	12 hours
SR 3.4.1.3	Verify RCS total flow rate is ≥ 301,670 gpm and greater than or equal to the limit specified in the COLR.	12 hours
SR 3.4.1.4	Perform a CHANNEL CALIBRATION of differential pressure RCS total flow rate indication channels.	24 months
SR 3.4.1.5	--------------------------------NOTE------------------------------ Not required to be performed until 24 hours after ≥ 90% RTP. -- Verify RCS total flow rate is ≥ 301,670 gpm and greater than or equal to the limit specified in the COLR as determined by precision heat balance or differential pressure RCS total flow rate indication measurements.	24 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2 Each RCS loop average temperature (T_{avg}) shall be ≥ 551°F.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop is ≥ 551°F.	12 hours

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.

---NOTE---
No Reactor Coolant Pump (RCP) shall be started with any RCS cold leg temperatures ≤ 350°F unless the secondary side water temperature of each steam generator is ≤ 50°F above each of the RCS cold leg temperatures and the RCP is started at ≤ 25% of rated RCP speed.

APPLICABILITY: At all times.

ACTIONS

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	--------------------------------NOTE-------------------------------- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. --	
	Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates are within limits specified in the PTLR.	30 minutes

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops

LCO 3.4.4 Two RCS loops shall be OPERABLE with four Reactor Coolant Pumps (RCPs) in operation with variable speed control bypassed.

---NOTE---
All RCPs may be removed from operation in MODE 3, 4, or 5 for ≤ 1 hour per 8 hour period provided:

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

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

APPLICABILITY: MODES 1 and 2,
MODES 3, 4, and 5 with Plant Control System capable of rod withdrawal or one or more rods not fully inserted.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ------------NOTE------------ Required Actions must be completed whenever Condition A is entered. -------------------------------- Requirements of LCO not met in MODE 1 or 2.	A.1 Suspend start of any RCP. <u>AND</u> A.2 Be in MODE 3. <u>AND</u> A.3 Initiate action to fully insert all rods. <u>AND</u>	Immediately 6 hours 6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.4	Place the Plant Control System in a condition incapable of rod withdrawal.	6 hours
B. ------------NOTE------------ Required Actions must be completed whenever Condition B is entered. -------------------------------- Requirements of LCO not met in MODE 3, 4, or 5.	B.1	Suspend start of any RCP.	Immediately
	<u>AND</u>		
	B.2	Initiate action to fully insert all rods.	1 hour
	<u>AND</u>		
	B.3	Place the Plant Control System in a condition incapable of rod withdrawal.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify each RCS loop is in operation with variable speed control bypassed.	12 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 Pressurizer

LCO 3.4.5 The pressurizer water level shall be ≤ 92% of span.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all four cold leg temperatures > 275°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Be in MODE 3.	6 hours
	AND	
	A.2 Initiate action to fully insert all rods.	6 hours
	AND	
	A.3 Place the Plant Control System in a condition incapable of rod withdrawal.	6 hours
	AND	
	A.4 Be in MODE 4 with at least one cold leg temperature ≤ 275°F.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify pressurizer water level ≤ 92% of span.	12 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 Pressurizer Safety Valves

LCO 3.4.6 Two pressurizer safety valves shall be OPERABLE with lift settings ≥ 2460 psig and ≤ 2510 psig.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all four cold leg temperatures > 275°F.

---NOTE---
The lift settings are not required to be within the LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. One pressurizer safety valve at a time may be inoperable for hot lift setting adjustment.

This exception is allowed for 36 hours following entry into MODE 3, provided a preliminary cold setting was made prior to heatup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes
B. Required Action and associated Completion Time of Condition A not met. OR Two pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 4 with at least one cold leg temperature ≤ 275°F.	6 hours 24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify each pressurizer safety valve 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)

3.4.7 RCS Operational LEAKAGE

LCO 3.4.7 RCS operational LEAKAGE shall be limited to:

a. No pressure boundary LEAKAGE,

b. 0.5 gpm unidentified LEAKAGE,

c. 10 gpm identified LEAKAGE from the RCS,

d. 150 gallons per day primary to secondary LEAKAGE through any one Steam Generator (SG), and

e. 500 gallons per day primary to In-containment Refueling Water Storage Tank (IRWST) LEAKAGE through the passive residual heat removal heat exchanger (PRHR HX).

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time 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 3.4.7.1	-------------------------------NOTES------------------------------- 1. Not required to be performed until 12 hours after establishment of steady state operation. 2. Not applicable to primary to secondary LEAKAGE. --- Verify RCS operational LEAKAGE is within limits by performance of RCS water inventory balance.	72 hours
SR 3.4.7.2	-------------------------------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.	72 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 Minimum RCS Flow

LCO 3.4.8 At least one Reactor Coolant Pump (RCP) shall be in operation with a total flow through the core of ≥ 3000 gpm.

--NOTE--

a. All RCPs may be removed from operation for ≤ 1 hour per 8 hour period for the purpose of testing; or

b. With no RCPs in operation, an unborated water source through the chemical mixing tank may be unisolated under administrative controls for ≤ 1 hour for the purpose of chemical addition to the pressurizer,

provided:

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

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

APPLICABILITY: MODES 3, 4, and 5 with unborated water sources not isolated from the RCS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. -----------NOTE------------- Required Action A.2 shall be completed prior to starting any RCP whenever this Condition is entered. -------------------------------- No RCP in operation.	A.1 Isolate all sources of unborated water. AND A.2 Perform SR 3.1.1.1.	1 hour 1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify at least one RCP is in operation with total flow through the core ≥ 3000 gpm.	12 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 RCS Leakage Detection Instrumentation

LCO 3.4.9 The following RCS leakage detection instrumentation shall be OPERABLE:

a. Two containment sump level channels; and

b. One containment atmosphere F18 particulate monitor.

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

--NOTES--

1. The following RCS leakage detection instrumentation is not required to be OPERABLE provided SR 3.4.7.1 is performed once per 24 hours after 12 hours of steady state operation:

    a. The required containment sump level channels when In-containment Refueling Water Storage Tank (IRWST) gutter drain isolation valves are closed and for 2 hours after reopening IRWST gutter drain isolation valves; and

    b. The containment atmosphere F18 particulate monitor and required containment sump level channels when containment purge flow path is open and for 2 hours after containment purge flow path is closed.

2. The containment atmosphere F18 particulate monitor is only required to be OPERABLE in MODE 1 with THERMAL POWER > 20% RTP.

ACTIONS

---NOTE---

LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required containment sump channel inoperable.	A.1	Restore two containment sump channels to OPERABLE status.	14 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Two required containment sump channels inoperable.	B.1	---------------NOTE-------------- Not required until 12 hours after establishment of steady state operation. ------------------------------------- Perform SR 3.4.7.1.	Once per 24 hours
	AND		
	B.2	Restore one containment sump channel to OPERABLE status.	72 hours
C. Containment atmosphere F18 particulate monitor inoperable.	C.1.1	Analyze grab samples of containment atmosphere.	Once per 24 hours
	OR		
	C.1.2	--------------NOTE--------------- Not required until 12 hours after establishment of steady state operation. ------------------------------------- Perform SR 3.4.7.1.	Once per 24 hours
	AND		
	C.2	Restore containment atmosphere F18 particulate monitor to OPERABLE status.	30 days
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. All required monitors inoperable.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Perform a CHANNEL CHECK.	12 hours
SR 3.4.9.2	Perform a COT of containment atmosphere F18 particulate monitor.	92 days
SR 3.4.9.3	Perform a CHANNEL CALIBRATION.	24 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 RCS Specific Activity

LCO 3.4.10 The specific activity of the reactor coolant shall be within limits.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 µCi/gm.	-------------------NOTE------------------- LCO 3.0.4 is not applicable. --	
	A.1 Verify DOSE EQUIVALENT I-131 ≤ 60 µCi/gm.	Once per 4 hours
	<u>AND</u>	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. DOSE EQUIVALENT XE-133 > 280 µCi/gm.	B.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours
C. Required Action and associated Completion Time of Condition A not met. <u>OR</u> DOSE EQUIVALENT I-131 > 60 µCi/gm.	C.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity ≤ 280 μCi/gm.	7 days
SR 3.4.10.2	--------------------------------NOTE----------------------------- Only required to be performed in MODE 1. -- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm.	14 days AND Between 2 and 6 hours after a THERMAL POWER change of ≥ 15% of RTP within a 1 hour period

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Automatic Depressurization System (ADS) – Operating

LCO 3.4.11 Ten ADS flow paths shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One flow path in ADS Stage 1, 2, or 3 inoperable.	A.1	Restore flow path to OPERABLE status.	7 days
B. One flow path in ADS Stage 4 inoperable.	B.1	Restore flow path to OPERABLE status.	72 hours
C. One flow path in ADS Stage 1 inoperable and one flow path in ADS Stage 2 or 3 inoperable. <u>OR</u> Two flow paths in ADS Stage 1 inoperable.	C.1	Restore one flow path to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met. <u>OR</u> Condition A and Condition B entered concurrently. <u>OR</u> Three or more of the six flow paths in ADS Stages 1, 2, and 3 inoperable. <u>OR</u> LCO not met for reasons other than Condition A, B, or C.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	Verify the motor operated valve in series with each Stage 4 ADS valve is open.	12 hours
SR 3.4.11.2	Verify each ADS valve in ADS Stages 1, 2, and 3 strokes open.	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.11.3	Verify each Stage 4 ADS valve is OPERABLE in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program
SR 3.4.11.4	Verify each ADS valve in ADS Stages 1, 2, and 3 actuates to the open position on an actual or simulated actuation signal.	24 months
SR 3.4.11.5	-------------------------------NOTE-------------------------------- Squib actuation may be excluded. --- Verify continuity of the circuit from the Protection Logic Cabinets to each Stage 4 ADS valve.	 24 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Automatic Depressurization System (ADS) – Shutdown, RCS Intact

LCO 3.4.12

A. With reactor subcritical for < 28 hours:

1. Five flow paths in ADS Stages 1, 2, and 3 shall be OPERABLE; and

2. Four flow paths in ADS Stage 4 shall be OPERABLE.

B. With reactor subcritical for ≥ 28 hours:

1. Three flow paths in ADS Stages 1, 2, and 3, with a minimum of two flow paths in ADS Stage 2 or 3, shall be OPERABLE; and

2. Three flow paths in ADS Stage 4 shall be OPERABLE.

APPLICABILITY: MODE 5 with RCS pressure boundary intact and pressurizer level ≥ 20%.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required flow path in ADS Stage 1, 2, or 3 inoperable.	A.1 Restore required flow path to OPERABLE status.	7 days
B. One required flow path in ADS Stage 4 inoperable.	B.1 Restore required flow path to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One required flow path in ADS Stage 1 inoperable and one required flow path in ADS Stage 2 or 3 inoperable. <u>OR</u> Two required flow paths in ADS Stage 1 inoperable.	C.1 Restore one required flow path to OPERABLE status.	72 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met. <u>OR</u> Condition A and Condition B entered concurrently. <u>OR</u> Three or more required flow paths in ADS Stage 1, 2, or 3 inoperable. <u>OR</u> LCO not met for reasons other than Condition A, B, or C.	D.1 Initiate action to open the RCS pressure boundary.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	For flow paths required to be OPERABLE, the SRs of LCO 3.4.11, "Automatic Depressurization System (ADS) – Operating" are applicable.	In accordance with applicable SRs

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 Automatic Depressurization System (ADS) – Shutdown, RCS Open

LCO 3.4.13

A. With reactor subcritical for < 28 hours:

1. Five flow paths in ADS Stages 1, 2, and 3 shall be open; and
2. Four flow paths in ADS Stage 4 shall be OPERABLE.

B. With reactor subcritical for ≥ 28 hours:

1. Three flow paths in ADS Stages 1, 2, and 3, with a minimum of two flow paths in ADS Stage 2 or 3, shall be open; and
2. Three flow paths in ADS Stage 4 shall be OPERABLE.

--NOTE--
In MODE 5, required flow paths in ADS Stages 1, 2, and 3 may be closed for the following purposes, provided they meet OPERABILITY requirements of LCO 3.4.12, “ADS – Shutdown, RCS Intact”:

a. To facilitate RCS vacuum fill operations until a pressurizer level of ≥ 20% is established; or

b. To facilitate LCO compliance during transitions between LCO 3.4.12 and LCO 3.4.13

APPLICABILITY: MODE 5 with pressurizer level < 20%,
MODE 5 with RCS pressure boundary open,
MODE 6 with upper internals in place.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required flow path in ADS Stages 1, 2, and 3 not open.	A.1	Restore required flow path in ADS Stages 1, 2, and 3 to open status.	72 hours
	<u>OR</u>		

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	Open alternative flow path(s) with an equivalent area.	72 hours
B. One required flow path in ADS Stage 4 inoperable.	B.1	Restore required flow path in ADS Stage 4 to OPERABLE status.	36 hours
	<u>OR</u>		
	B.2	Open an alternative flow path with an equivalent area.	36 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 5. <u>OR</u> Condition A and Condition B entered concurrently in MODE 5. <u>OR</u> LCO not met for reasons other than Condition A or B in MODE 5.	C.1	Initiate action to fill the RCS to establish ≥ 20% pressurizer level.	Immediately
	<u>AND</u>		
	C.2	Suspend positive reactivity additions.	Immediately
	<u>AND</u>		
	C.3	Initiate action to establish RCS VENTED condition.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met in MODE 6. OR Condition A and Condition B entered concurrently in MODE 6. OR LCO not met for reasons other than Condition A or B in MODE 6.	D.1 Initiate action to remove the upper internals. AND D.2 Suspend positive reactivity additions.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	Verify each required ADS Stage 1, 2, and 3 valve is in the open position.	12 hours
SR 3.4.13.2	For each required flow path in ADS Stage 4, the following SRs are applicable: SR 3.4.11.1 SR 3.4.11.3 SR 3.4.11.5	In accordance with applicable SRs

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 Low Temperature Overpressure Protection (LTOP)

LCO 3.4.14 At least one of the following overpressure protection methods shall be OPERABLE, with the accumulators isolated:

a. Two Normal Residual Heat Removal System (RNS) suction relief valves and Chemical and Volume Control System (CVS) makeup line containment isolation valve, CVS-PL-V091, closed: or

b. The RCS depressurized and an RCS vent of ≥ 4.15 square inches.

--NOTE--
Accumulator isolation is required only when accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.

APPLICABILITY: MODE 4 when any cold leg temperature is ≤ 275°F,
MODE 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. An accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure allowed in the PTLR for existing cold leg temperature.	A.1	Isolate affected accumulator.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ------------NOTE------------ Not applicable when RCS vent of ≥ 4.15 square inches is established. ---------------------------- CVS-PL-V091 not closed.	B.1 Close CVS-PL-V091.	1 hour
C. Required Action and associated Completion Time of Condition A not met.	C.1 Increase RCS cold leg temperature to a level acceptable for the existing accumulator pressure allowed in the PTLR. <u>OR</u> C.2 Depressurize affected accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours 12 hours
D. Required LTOP method inoperable for reasons other than Condition A, B, or C.	D.1 Restore two RNS suction relief valves to OPERABLE status. <u>OR</u> D.2 Depressurize RCS and establish RCS vent of ≥ 4.15 square inches.	12 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	-------------------------------NOTE------------------------------- Only required to be met when accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR. --- Verify each accumulator is isolated.	12 hours
SR 3.4.14.2	-------------------------------NOTE------------------------------- Only required to be met when complying with LCO 3.4.14.a. --- Verify both RNS suction isolation valves in one RNS suction flow path are open.	12 hours
SR 3.4.14.3	-----------------------------NOTE------------------------------- Only required to be met when complying with LCO 3.4.14.a. -- Verify CVS makeup line containment isolation valve, CVS-PL-V091, is closed.	12 hours
SR 3.4.14.4	------------------------------NOTE------------------------------ Only required to be met when complying with LCO 3.4.14.b. -- Verify RCS vent ≥ 4.15 square inches is open.	12 hours for unlocked-open vent <u>AND</u> 31 days for locked-open vent

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.14.5	---NOTE--- Only required to be met when complying with LCO 3.4.14.a. --- Verify the lift setting of each RNS suction relief valve in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Pressure Isolation Valve (PIV) Integrity

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

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with the RCS not being cooled by the Normal Residual Heat Removal System (RNS).

ACTIONS

---NOTES---

1. Separate Condition entry is allowed for each flow path.
2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable RCS PIV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. 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 in the reactor coolant pressure boundary or the high pressure portion of the system. --	
	A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve.	8 hours
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	Verify a second OPERABLE PIV can meet the leakage limits. This valve is required to be a check valve, or a closed valve, if it isolates a line that penetrates containment.	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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Verify leakage of each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch valve size up to a maximum of 5 gpm at an RCS pressure ≥ 2215 psig and ≤ 2255 psig.	24 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 Reactor Vessel Head Vent (RVHV)

LCO 3.4.16 The RVHV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all four cold leg temperatures > 275° F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One flow path inoperable.	A.1 Restore flow path to OPERABLE status.	72 hours
B. Two flow paths inoperable.	B.1 Restore at least one flow path to OPERABLE status.	6 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4, with at least one cold leg temperature ≤ 275° F.	6 hours 24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.16.1 Verify each RVHV valve strokes open.	In accordance with the Inservice Testing Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Steam Generator (SG) Tube Integrity

LCO 3.4.17 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube 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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> SG tube integrity not maintained.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

3.5 PASSIVE CORE COOLING SYSTEM (PXS)

3.5.1 Accumulators

LCO 3.5.1 Both accumulators shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODES 3 and 4 with Reactor Coolant System (RCS) pressure > 1000 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One accumulator inoperable due to boron concentration outside limits.	A.1 Restore boron concentration to within limits.	72 hours
B. One accumulator inoperable for reasons other than Condition A.	B.1 Restore accumulator to OPERABLE status.	1 hour from discovery of LCO 3.5.1 Condition B entry concurrent with LCO 3.5.2 Condition C or E entry <u>AND</u> 8 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Reduce RCS pressure to ≤ 1000 psig.	6 hours 12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two accumulators inoperable.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each accumulator isolation valve is fully open.	12 hours
SR 3.5.1.2	Verify the borated water volume in each accumulator is ≥ 1667 cu ft, and ≤ 1732 cu ft.	12 hours
SR 3.5.1.3	Verify the nitrogen cover gas pressure in each accumulator is ≥ 637 psig and ≤ 769 psig.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.4	Verify the boron concentration in each accumulator is ≥ 2600 ppm and ≤ 2900 ppm.	31 days <u>AND</u> --------NOTE-------- Only required for affected accumulators. ------------------------ Once within 6 hours after each solution volume increase of ≥ 51 cu ft, that is not the result of addition from the In-containment Refueling Water Storage Tank
SR 3.5.1.5	Verify power is removed from each accumulator isolation valve operator when pressurizer pressure is ≥ 2000 psig.	31 days
SR 3.5.1.6	Verify system flow performance of each accumulator in accordance with the System Level OPERABILITY Testing Program.	10 years

3.5 PASSIVE CORE COOLING SYSTEM (PXS)

3.5.2 Core Makeup Tanks (CMTs) – Operating

LCO 3.5.2 Both CMTs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with the Reactor Coolant System (RCS) not being cooled by the Normal Residual Heat Removal System (RNS).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CMT inoperable due to one CMT outlet isolation valve inoperable.	A.1 Restore outlet isolation valve to OPERABLE status.	72 hours
B. One CMT inoperable due to water temperature or boron concentration not within limits.	B.1 Restore water temperature and boron concentration to within limits.	72 hours
C. Two CMTs inoperable due to water temperature or boron concentration not within limits.	C.1 Restore water temperature and boron concentration to within limits for one CMT.	1 hour from discovery of LCO 3.5.2 Condition C entry concurrent with LCO 3.5.1 Condition B entry <u>AND</u> 8 hours
D. One CMT inlet line with noncondensible gas volume not within limit.	D.1 Restore CMT inlet line noncondensible gas volume to within limit.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One CMT inoperable for reasons other than Condition A, B, or D.	E.1 Restore CMT to OPERABLE status.	1 hour from discovery of LCO 3.5.2 Condition E entry concurrent with LCO 3.5.1 Condition B entry AND 8 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. OR Two CMTs inoperable for reasons other than Condition C.	F.1 Be in MODE 3. AND F.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify the temperature of the borated water in each CMT is < 120°F.	24 hours
SR 3.5.2.2	Verify each CMT inlet isolation valve is fully open.	12 hours
SR 3.5.2.3	Verify the volume of noncondensible gases in each CMT inlet line has not caused the high-point water level to drop below the sensor.	24 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify the boron concentration in each CMT is ≥ 3400 ppm and ≤ 4500 ppm.	31 days
SR 3.5.2.5	Verify each CMT outlet isolation valve strokes open.	In accordance with the Inservice Testing Program
SR 3.5.2.6	Verify each CMT outlet isolation valve actuates to the open position on an actual or simulated actuation signal.	24 months
SR 3.5.2.7	Verify system flow performance of each CMT in accordance with the System Level OPERABILITY Testing Program.	10 years

3.5 PASSIVE CORE COOLING SYSTEM (PXS)

3.5.3 Core Makeup Tanks (CMTs) – Shutdown, Reactor Coolant System (RCS) Intact

LCO 3.5.3 One CMT shall be OPERABLE.

APPLICABILITY: MODE 4 with the RCS cooling provided by the Normal Residual Heat Removal System (RNS),
MODE 5 with the RCS not VENTED.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required CMT inoperable due to one outlet isolation valve inoperable.	A.1 Restore required isolation valve to OPERABLE status.	72 hours
B. Required CMT inoperable due to water temperature or boron concentration not within limits.	B.1 Restore required CMT water temperature and boron concentration to within limits.	72 hours
C. Required CMT inlet line noncondensible gas volume not within limit in MODE 4.	C.1 Restore required CMT inlet line noncondensible gas volume to within limit.	24 hours
	<u>OR</u>	
	C.2 Be in MODE 5.	24 hours
D. Required CMT inoperable for reasons other than Condition A, B, or C.	D.1 Restore required CMT to OPERABLE status.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, B, or D not met.	E.1 Initiate action to be in MODE 5 with RCS VENTED.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	The following SRs are applicable: SR 3.5.2.1 SR 3.5.2.5 SR 3.5.2.2 SR 3.5.2.6 SR 3.5.2.4 SR 3.5.2.7	In accordance with applicable SRs
SR 3.5.3.2	-------------------------------NOTE------------------------------ Only required to be met in MODE 4 with RCS cooling provided by RNS. --- The following SR is applicable: SR 3.5.2.3	In accordance with applicable SR
SR 3.5.3.3	-------------------------------NOTE------------------------------ Only required to be met in MODE 5 with the RCS not VENTED. --- Verify the borated water volume is ≥ 2450 cu ft.	7 days

3.5 PASSIVE CORE COOLING SYSTEM (PXS)

3.5.4 Passive Residual Heat Removal Heat Exchanger (PRHR HX) – Operating

LCO 3.5.4 The PRHR HX shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with the Reactor Coolant System (RCS) not being cooled by the Normal Residual Heat Removal System (RNS).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One air operated PRHR HX outlet isolation valve inoperable.	A.1 Restore air operated PRHR HX outlet isolation valve to OPERABLE status.	72 hours
B. One air operated In-containment Refueling Water Storage Tank (IRWST) gutter isolation valve inoperable.	B.1 Restore air operated IRWST gutter isolation valve to OPERABLE status.	72 hours
C. PRHR HX inlet line noncondensible gas volume not within limit.	C.1 Restore PRHR HX inlet line noncondensible gas volume to within limit.	24 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3.	6 hours
	AND	
	D.2 Be in MODE 4 with the RCS cooling provided by the RNS.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. LCO not met for reasons other than Condition A, B, or C.	E.1	Restore PRHR HX to OPERABLE status.	8 hours
F. Required Action and associated Completion Time of Condition E not met.	F.1	--------------NOTE-------------- If redundant means of providing steam generator (SG) feedwater are not available, suspend LCO 3.0.3 and all other LCO Required Actions requiring MODE changes until redundant means are available. ------------------------------------	
		Be in MODE 3.	6 hours from discovery of redundant means of providing SG feedwater
	<u>AND</u>		
	F.2	--------------NOTE--------------- If redundant means of cooling the RCS to MODE 5 are not available, suspend LCO 3.0.3 and all other LCO Required Actions requiring MODE changes until redundant means are available. ------------------------------------	
		Be in MODE 5.	36 hours from discovery of redundant means of cooling the RCS to MODE 5

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	Verify the PRHR HX outlet manual isolation valve is fully open.	12 hours
SR 3.5.4.2	Verify the PRHR HX inlet motor operated isolation valve is open.	12 hours
SR 3.5.4.3	Verify the volume of noncondensible gases in the PRHR HX inlet line has not caused the high-point water level to drop below the sensor.	24 hours
SR 3.5.4.4	--------------------------------NOTE-------------------------------- Only required to be met when one or more Reactor Coolant Pumps (RCPs) are in operation. -- Verify one Loop 1 RCP is in operation.	12 hours
SR 3.5.4.5	Verify power is removed from the PRHR HX inlet motor operated isolation valve.	31 days
SR 3.5.4.6	Verify both PRHR HX air operated outlet isolation valves stroke open and both IRWST gutter isolation valves stroke closed.	In accordance with the Inservice Testing Program
SR 3.5.4.7	Verify by visual inspection that the IRWST gutter and downspout screens are not restricted by debris.	24 months
SR 3.5.4.8	Verify both PRHR HX air operated outlet isolation valves actuate to the open position and both IRWST gutter isolation valves actuate to the isolation position on an actual or simulated actuation signal.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.4.9	Verify PRHR HX heat transfer performance in accordance with the System Level OPERABILITY Testing Program.	10 years

3.5 PASSIVE CORE COOLING SYSTEM (PXS)

3.5.5 Passive Residual Heat Removal Heat Exchanger (PRHR HX) – Shutdown, Reactor Coolant System (RCS) Intact

LCO 3.5.5 The PRHR HX shall be OPERABLE.

APPLICABILITY: MODE 4 with the RCS cooling provided by the Normal Residual Heat Removal System (RNS),
MODE 5 with the RCS pressure boundary intact and pressurizer level ≥ 20%.

--NOTE--
PRHR HX is not required to be OPERABLE in MODE 5 during RCS vacuum fill operations.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One air operated PRHR HX outlet isolation valve inoperable.	A.1 Restore air operated PRHR HX outlet isolation valve to OPERABLE status.	72 hours
B. One air operated In-containment Refueling Water Storage Tank (IRWST) gutter isolation valve inoperable.	B.1 Restore air operated IRWST gutter isolation valve to OPERABLE status.	72 hours
C. PRHR HX inlet line noncondensible gas volume not within limit.	C.1 Restore PRHR HX inlet line noncondensible gas volume to within limit.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. PRHR HX inoperable for reasons other than Condition A, B, or C.	D.1	Restore PRHR HX to OPERABLE status.	8 hours
E. Required Action and associated Completion Time not met.	E.1	Initiate action to be in MODE 5 with the RCS pressure boundary open.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.5.1	The SRs of Specification 3.5.4, “Passive Residual Heat Removal Heat Exchanger (PRHR HX) – Operating,” are applicable.	In accordance with applicable SRs

3.5 PASSIVE CORE COOLING SYSTEM (PXS)

3.5.6 In-containment Refueling Water Storage Tank (IRWST) – Operating

LCO 3.5.6 The IRWST, with two injection flow paths and two containment recirculation flow paths, shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One IRWST injection line actuation valve flow path inoperable. <u>OR</u> One containment recirculation line actuation valve flow path inoperable.	A.1	Restore the inoperable actuation valve flow path to OPERABLE status.	72 hours
B. One IRWST injection flow path with noncondensible gas volume in one squib valve outlet line pipe stub not within limit.	B.1	Restore noncondensible gas volume in squib valve outlet line pipe stub to within limit.	72 hours
C. One IRWST injection flow path with noncondensible gas volume in both squib valve outlet line pipe stubs not within limit.	C.1	Restore noncondensible gas volume in one squib valve outlet line pipe stub to within limit.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. IRWST boron concentration not within limits. <u>OR</u> IRWST borated water temperature not within limits. <u>OR</u> IRWST borated water volume < 73,100 cu ft and ≥ 70,907 cu ft.	D.1	Restore IRWST to OPERABLE status.	8 hours
E. One motor operated IRWST isolation valve not fully open. <u>OR</u> Power is not removed from one or more motor operated IRWST isolation valves.	E.1	Restore motor operated IRWST isolation valve to fully open condition with power removed from both valves.	1 hour
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> LCO not met for reasons other than Condition A, B, C, D, or E.	F.1 <u>AND</u> F.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.6.1	Verify the IRWST water temperature is < 120°F.	24 hours
SR 3.5.6.2	Verify the IRWST borated water volume is ≥ 73,100 cu ft.	24 hours
SR 3.5.6.3	Verify the volume of noncondensible gases in each of the four IRWST injection squib valve outlet line pipe stubs has not caused the high-point water level to drop below the sensor.	24 hours
SR 3.5.6.4	Verify the IRWST boron concentration is ≥ 2600 ppm and ≤ 2900 ppm.	31 days <u>AND</u> Once within 6 hours after each solution volume increase of ≥ 15,000 gal
SR 3.5.6.5	Verify each motor operated IRWST isolation valve is fully open.	12 hours
SR 3.5.6.6	Verify power is removed from each motor operated IRWST isolation valve.	31 days
SR 3.5.6.7	Verify each motor operated containment recirculation isolation valve is fully open.	31 days
SR 3.5.6.8	Verify each IRWST injection and containment recirculation squib valve is OPERABLE in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.6.9	-------------------------------NOTE------------------------------- Squib actuation may be excluded. --- Verify continuity of the circuit from the Protection Logic Cabinets to each IRWST injection and containment recirculation squib valve on an actual or simulated actuation signal.	24 months
SR 3.5.6.10	Verify by visual inspection that the IRWST screens and the containment recirculation screens are not restricted by debris.	24 months
SR 3.5.6.11	Verify IRWST injection and recirculation system flow performance in accordance with the System Level OPERABILITY Testing Program.	10 years

3.5 PASSIVE CORE COOLING SYSTEM (PXS)

3.5.7 In-containment Refueling Water Storage Tank (IRWST) – Shutdown, MODE 5

LCO 3.5.7 The IRWST, with one injection flow path and one containment recirculation flow path, shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required motor operated containment recirculation isolation valve not fully open.	A.1 Open required motor operated containment recirculation isolation valve.	72 hours
B. Required IRWST injection flow path with noncondensible gas volume in one squib valve outlet line pipe stub not within limit.	B.1 Restore noncondensible gas volume in squib valve outlet line pipe stub to within limit.	72 hours
C. Required IRWST injection flow path with noncondensible gas volume in both squib valve outlet line pipe stubs not within limit.	C.1 Restore noncondensible gas volume in one squib valve outlet line pipe stub to within limit.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. IRWST boron concentration not within limits. OR IRWST borated water temperature not within limits. OR IRWST borated water volume < 73,100 cu ft and ≥ 70,907 cu ft.	D.1 Restore IRWST to OPERABLE status.	8 hours
E. Required motor operated IRWST isolation valve not fully open. OR Power is not removed from required motor operated IRWST isolation valve.	E.1 Restore required motor operated IRWST isolation valve to fully open condition with power removed.	1 hour
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. OR LCO not met for reasons other than Condition A, B, C, D, or E.	F.1 Initiate action to establish ≥ 20% pressurizer level with the Reactor Coolant System (RCS) pressure boundary intact. AND F.2 Suspend positive reactivity additions.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.7.1	------------------------------NOTE------------------------------ Penetration flow path(s) may be unisolated intermittently under administrative controls. --- Verify Spent Fuel Pool Cooling System containment isolation valves are closed.	31 days
SR 3.5.7.2	For the IRWST and flow paths required to be OPERABLE, the following SRs are applicable: SR 3.5.6.1 SR 3.5.6.7 SR 3.5.6.2 SR 3.5.6.8 SR 3.5.6.4 SR 3.5.6.9 SR 3.5.6.5 SR 3.5.6.10 SR 3.5.6.6 SR 3.5.6.11	In accordance with applicable SRs
SR 3.5.7.3	------------------------------NOTE------------------------------ Not required to be met during RCS vacuum fill operations. --- For the IRWST and flow paths required to be OPERABLE, the following SR is applicable: SR 3.5.6.3	In accordance with applicable SR

3.5 PASSIVE CORE COOLING SYSTEM (PXS)

3.5.8 In-containment Refueling Water Storage Tank (IRWST) – Shutdown, MODE 6

LCO 3.5.8 The IRWST, with one injection flow path and one containment recirculation flow path, shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required motor operated containment recirculation isolation valve not fully open.	A.1 Open required motor operated containment recirculation isolation valve.	72 hours
B. Required IRWST injection flow path with noncondensible gas volume in one squib valve outlet line pipe stub not within limit.	B.1 Restore noncondensible gas volume in squib valve outlet line pipe stub to within limit.	72 hours
C. Required IRWST injection flow path with noncondensible gas volume in both squib valve outlet line pipe stubs not within limit.	C.1 Restore noncondensible gas volume in one squib valve outlet line pipe stub to within limit.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. IRWST and refueling cavity boron concentration not within limits. <u>OR</u> IRWST and refueling cavity borated water temperature not within limits. <u>OR</u> IRWST and refueling cavity borated water volume < 73,100 cu ft and ≥ 70,907 cu ft.	D.1 Restore IRWST to OPERABLE status.	8 hours
E. Required motor operated IRWST isolation valve not fully open. <u>OR</u> Power is not removed from required motor operated IRWST isolation valve.	E.1 Restore required motor operated IRWST isolation valve to fully open condition with power removed.	1 hour

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 LCO not met for reasons other than Condition A, B, C, D, or E.	F.1 Initiate action to establish water level ≥ 23 ft above the top of the reactor vessel flange. AND F.2 Suspend positive reactivity additions.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.8.1	Verify the IRWST and refueling cavity water temperature is < 120°F.	24 hours
SR 3.5.8.2	Verify the IRWST and refueling cavity water total borated water volume is ≥ 73,100 cu ft.	24 hours
SR 3.5.8.3	-----------------------------NOTES-------------------------------- 1. Penetration flow path(s) may be unisolated intermittently under administrative controls. 2. Only required to be met with refueling cavity and spent fuel pool volumes not in communication. --- Verify Spent Fuel Pool Cooling System containment isolation valves are closed.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.8.4	Verify the IRWST and refueling cavity boron concentration is ≥ 2600 ppm and ≤ 2900 ppm.	31 days <u>AND</u> Once within 6 hours after each combined volume increase of ≥ 15,000 gal
SR 3.5.8.5	For the IRWST and flow paths required to be OPERABLE, the following SRs are applicable: SR 3.5.6.3 SR 3.5.6.8 SR 3.5.6.5 SR 3.5.6.9 SR 3.5.6.6 SR 3.5.6.10 SR 3.5.6.7 SR 3.5.6.11	In accordance with applicable SRs

3.6 CONTAINMENT SYSTEMS

3.6.1 Containment

LCO 3.6.1 Containment shall be OPERABLE.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks

LCO 3.6.2 Two containment air locks shall be OPERABLE

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

ACTIONS

--NOTES--

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

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

ACTIONS (continued)

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1	-------------------------------NOTES------------------------------ 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1. --- Perform required air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.2.2	Verify only one door in the air lock can be opened at a time.	24 months

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE, except for containment isolation valves associated with closed systems and for vacuum relief valves.

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

ACTIONS

---NOTES---

1. Penetration flow path(s) may be unisolated intermittently under administrative controls.

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

3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one containment isolation valve inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	--------------NOTES------------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means. ------------------------------------ Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment <u>AND</u> Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. One or more penetration flow paths with two containment isolation valves inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Verify each 16 inch containment purge valve is closed, except when the 16 inch containment purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances which require the valves to be open.	31 days
SR 3.6.3.2	-------------------------------NOTE------------------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative controls. -- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	31 days
SR 3.6.3.3	-------------------------------NOTE------------------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative controls. -- Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.4	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	In accordance with the Inservice Testing Program
SR 3.6.3.5	Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	24 months

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be ≥ -0.2 psig and ≤ +1.0 psig.

APPLICABILITY: MODES 1, 2, 3, and 4,
MODES 5 and 6 without an open containment air flow path ≥ 6 inches in diameter.

--NOTE--
The high pressure LCO limit is not applicable in MODES 5 and 6.

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 of Condition A not met in MODE 1, 2, 3, or 4.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours
C. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6.	C.1 Open a containment air flow path ≥ 6 inches in diameter.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1	Verify containment pressure is within limits.	12 hours

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,
MODES 5 and 6 with both containment equipment hatches and both containment airlocks closed.

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 of Condition A not met in MODE 1, 2, 3, or 4.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours
C. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6.	C.1 Open containment equipment hatch or containment airlock.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1	Verify containment average air temperature is within limit.	12 hours

3.6 CONTAINMENT SYSTEMS

3.6.6 Passive Containment Cooling System (PCS)

LCO 3.6.6 The passive containment cooling system shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
MODES 5 and 6 with the reactor decay heat > 7.0 MWt.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One passive containment cooling water flow path inoperable.	A.1 Restore flow path to OPERABLE status.	7 days
B. Two passive containment cooling water flow paths inoperable.	B.1 Restore one flow path to OPERABLE status.	72 hours
C. One or more water storage tank parameters not within limits.	C.1 Restore water storage tank to OPERABLE status.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met in MODE 1, 2, 3, or, 4. <u>OR</u> LCO not met for reasons other than Condition A, B, or C in MODE 1, 2, 3, or 4.	D.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	D.2	Be in MODE 5.	84 hours
E. Required Action and associated Completion Time of Condition A, B, or C not met in MODE 5. <u>OR</u> LCO not met for reasons other than Condition A, B, or C in MODE 5.	E.1	Initiate action to establish pressurizer level ≥ 20% with the Reactor Coolant System (RCS) pressure boundary intact.	Immediately
	<u>AND</u>		
	E.2	Suspend positive reactivity additions.	Immediately
F. Required Action and associated Completion Time of Condition A, B, or C not met in MODE 6. <u>OR</u> LCO not met for reasons other than Condition A, B, or C in MODE 6.	F.1	Initiate action to establish water level ≥ 23 ft above the top of the reactor vessel flange.	Immediately
	<u>AND</u>		
	F.2	Suspend positive reactivity additions.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	Verify the water storage tank temperature ≥ 40°F and ≤ 120°F.	24 hours
SR 3.6.6.2	Verify the water storage tank volume ≥ 756,700 gallons.	7 days
SR 3.6.6.3	Verify each passive containment cooling system manual, power operated, and automatic valve in each flow path that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.6.6.4	Verify each passive containment cooling system automatic valve in each flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months
SR 3.6.6.5	Verify the air flow path from the shield building annulus inlet to the exit is unobstructed and, that all air baffle sections are in place.	24 months
SR 3.6.6.6	Verify passive containment cooling system flow and water coverage performance in accordance with the System Level OPERABILITY Testing Program.	At first refueling <u>AND</u> 10 years

3.6 CONTAINMENT SYSTEMS

3.6.7 Containment Penetrations

LCO 3.6.7 The containment penetrations shall be in the following status:

a. The equipment hatches closed and held in place by four bolts or, if open, can be closed prior to steaming into the containment.

b. One door in each air lock closed or, if open, can be closed prior to steaming into the containment.

c. The containment spare penetrations, if open, can be closed prior to steaming into the containment.

d. Each penetration providing direct access from the containment atmosphere to the outside atmosphere, if open, can be closed by a manual or automatic isolation valve, blind flange, or equivalent prior to steaming into the containment.

APPLICABILITY: MODES 5 and 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Restore containment penetrations to required status.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR LCO not met for reasons other than Condition A.	B.1.1 If in MODE 5, initiate action to establish ≥ 20% pressurizer level with the Reactor Coolant System (RCS) pressure boundary intact.	Immediately
	OR	
	B.1.2 If in MODE 6, initiate action to establish water level ≥ 23 ft above the top of the reactor vessel flange.	Immediately
	AND	
	B.2 Suspend positive reactivity additions.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify each required containment penetration is in the required status.	7 days
SR 3.6.7.2	-------------------------------NOTE-------------------------------- Only required to be met for an open equipment hatch. --- Verify the hardware, tools, equipment and power source necessary to close the equipment hatch are available.	Prior to hatch removal AND 7 days

3.6 CONTAINMENT SYSTEMS

3.6.8 pH Adjustment

LCO 3.6.8 The pH adjustment baskets shall contain ≥ 26,460 lbs of trisodium phosphate (TSP).

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The weight of TSP in the pH adjustment baskets not within limit.	A.1 Restore weight of TSP in the pH adjustment baskets to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.8.1	Verify the pH adjustment baskets contain ≥ 26,460 lbs of TSP.	24 months
SR 3.6.8.2	Verify a sample from the pH adjustment baskets provides adequate pH adjustment of the post-accident water.	24 months

3.6 CONTAINMENT SYSTEMS

3.6.9 Vacuum Relief Valves

LCO 3.6.9 Two vacuum relief check valves and two vacuum relief isolation valves shall be OPERABLE.

AND

Containment inside to outside air temperature differential shall be ≤ 90°F.

APPLICABILITY: MODES 1, 2, 3, and 4,
MODES 5 and 6 without an open containment air flow path ≥ 6 inches in diameter.

---NOTE---
Vacuum relief valve OPERABILITY for closing is only required in MODES 1, 2, 3, and 4.

ACTIONS

---NOTE---
Enter applicable Conditions and Required Actions of LCO 3.6.1, “Containment,” when vacuum relief valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One vacuum relief check valve inoperable for opening.	A.1	Restore vacuum relief check valve to OPERABLE for opening status.	72 hours
B. One vacuum relief isolation valve inoperable for opening.	B.1	Restore vacuum relief isolation valve to OPERABLE for opening status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more vacuum relief check valves inoperable for closing. <u>OR</u> One or more vacuum relief isolation valves inoperable for closing.	C.1	Restore affected valve(s) to OPERABLE for closing status.	7 days
D. One or more vacuum relief check valves inoperable for closing. <u>AND</u> One or more vacuum relief isolation valves inoperable for closing.	D.1	Restore both vacuum relief check valves to OPERABLE for closing status.	1 hour
	<u>OR</u>		
	D.2	Restore both vacuum relief isolation valves to OPERABLE for closing status.	1 hour
E. Containment inside to outside air temperature differential > 90°F.	E.1	Restore containment inside to outside air temperature differential to within limit.	8 hours
	<u>OR</u>		
	E.2	Reduce containment average temperature ≤ 80°F.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D or E not met in MODE 1, 2, 3, or 4. <u>OR</u> Two vacuum relief check valves inoperable for opening in MODE 1, 2, 3, or 4. <u>OR</u> Two vacuum relief isolation valves inoperable for opening in MODE 1, 2, 3, or 4.	F.1 Be in MODE 3. <u>AND</u> F.2 Be in MODE 5.	6 hours 36 hours
G. Required Action and associated Completion Time of Condition A, B, or E not met in MODE 5 or 6. <u>OR</u> Two vacuum relief check valves inoperable for opening in MODE 5 or 6. <u>OR</u> Two vacuum relief isolation valves inoperable for opening in MODE 5 or 6.	G.1 Open a containment air flow path ≥ 6 inches in diameter.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.9.1	Verify containment inside to outside air temperature differential is ≤ 90°F.	12 hours
SR 3.6.9.2	------------------------------NOTES------------------------------ 1. Not required to be met for vacuum relief valves open during Surveillances. 2. Not required to be met for vacuum relief valves open when performing their vacuum relief function. --- Verify each vacuum relief isolation valve is closed.	31 days
SR 3.6.9.3	Verify each vacuum relief check valve and each vacuum relief isolation valve is OPERABLE in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program
SR 3.6.9.4	Verify each vacuum relief isolation valve actuates on actual or simulated signals.	24 months

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 Six MSSVs per steam generator shall be OPERABLE.

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

---NOTE---
The MSSVs are not required to be OPERABLE for opening in MODE 4 when the Reactor Coolant System (RCS) is being cooled by the Normal Residual Heat Removal System (RNS).

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both steam generators with one or more MSSVs inoperable for opening.	A.1 Reduce THERMAL POWER to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs. AND	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	---------------NOTE-------------- Only required in MODE 1. ------------------------------------- Reduce the Overpower ΔT reactor trip setpoints to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs.	 36 hours
B. One or both steam generators with one or more MSSVs inoperable for closing.	B.1	Restore MSSV to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition A not met. <u>OR</u> One or both steam generators with ≥ 5 MSSVs inoperable for opening.	C.1 <u>AND</u> C.2	Be in MODE 3. Be in MODE 4 with the RCS cooling provided by the RNS.	6 hours 24 hours
D. Required Action and associated Completion Time of Condition B not met.	D.1 <u>AND</u> D.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	--------------------------------NOTE------------------------------ Only required to be performed in MODES 1 and 2. --- Verify each MSSV lift setpoint per Table 3.7.1-2 in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program

Table 3.7.1-1 (page 1 of 1)
OPERABLE MSSVs versus Maximum Allowable Power

NUMBER OF OPERABLE MSSVs PER STEAM GENERATOR	MAXIMUM ALLOWABLE POWER (% RTP)
5	60
4	46
3	32
2	18

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

VALVE NUMBER STEAM GENERATOR #1	VALVE NUMBER STEAM GENERATOR #2	LIFT SETTING (psig ± 1%)
V030A	V030B	1185
V031A	V031B	1197
V032A	V032B	1209
V033A	V033B	1221
V034A	V034B	1232
V035A	V035B	1232

3.7 PLANT SYSTEMS

3.7.2 Main Steam Line Flow Path Isolation Valves

LCO 3.7.2 Each of the following main steam line flow path isolation valves shall be OPERABLE:

a. Main steam isolation valves (MSIVs);

b. MSIV bypass valves;

c. Main steam line drain valves;

d. Turbine stop valves or turbine control valves;

e. Turbine bypass valves; and

f. Moisture separator reheater 2nd stage steam isolation valves.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore valve to OPERABLE status.	8 hours
B. One or more of the turbine stop valves and associated turbine control valves, turbine bypass valves, or moisture separator reheater 2nd stage steam isolation valves inoperable in MODE 1.	B.1 Restore valve(s) to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two MSIVs inoperable in MODE 1. <u>OR</u> One MSIV inoperable and one or more of the turbine stop valves and associated turbine control valves, turbine bypass valves, or moisture separator reheater 2^{nd} stage steam isolation valves inoperable in MODE 1. <u>OR</u> Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 2.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D ------------NOTE------------ Separate Condition entry is allowed for each main steam line flow path. -------------------------------- One or two MSIVs inoperable in MODE 2, 3, or 4. <u>OR</u> One or more of the turbine stop valves and associated turbine control valves, turbine bypass valves, or moisture separator reheater 2^{nd} stage steam isolation valves inoperable in MODE 2, 3, or 4.	D.1 Isolate affected main steam line flow path. <u>AND</u> D.2 Verify affected main steam line flow path is isolated.	8 hours Once per 7 days
E. ------------NOTE------------ Separate Condition entry is allowed for each penetration flow path. -------------------------------- One or more MSIV bypass or main steam line drain valves inoperable.	-------------------NOTE-------------------- Penetration flow path(s) may be unisolated intermittently under administrative controls. --- E.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. <u>AND</u>	 72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. (continued)	E.2	--------------NOTES------------ 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means. ------------------------------------	
		Verify the affected penetration flow path is isolated.	Once per 31 days
F. Required Action and associated Completion Time of Condition D or E not met.	F.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	F.2	Be in MODE 4 with the Reactor Coolant System (RCS) cooling provided by the Normal Residual Heat Removal System (RNS).	24 hours
	<u>AND</u>		
	F.3	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	-------------------------------NOTE------------------------------- Only required to be performed prior to entry into MODE 2. -- Verify MSIV closure time is within limits on an actual or simulated actuation signal.	In accordance with the Inservice Testing Program
SR 3.7.2.2	-------------------------------NOTE------------------------------- Only required to be performed prior to entry into MODE 2. -- Verify closure time of required turbine stop, turbine control, turbine bypass, and moisture separator reheater 2nd stage steam isolation valves is within limits on an actual or simulated actuation signal.	In accordance with the Inservice Testing Program
SR 3.7.2.3	Verify the isolation time of each MSIV bypass valve and main steam line drain isolation valve is within limits.	In accordance with the Inservice Testing Program
SR 3.7.2.4	Verify each MSIV bypass valve and main steam line drain isolation valve actuates to the isolation position on an actual or simulated actuation signal.	24 months

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Control Valves (MFCVs)

LCO 3.7.3 The MFIV and the MFCV for each steam generator shall be OPERABLE.

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

ACTIONS

--NOTE--

Separate Condition entry is allowed for each feedwater flow path.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or both feedwater flow paths with MFIV or MFCV inoperable.	A.1	Isolate affected flow path.	72 hours
	<u>AND</u>		
	A.2	Verify affected flow path is isolated.	Once per 7 days
B. One or both feedwater flow paths with associated MFIV and MFCV inoperable.	B.1	Isolate affected flow path.	8 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 4 with the Reactor Coolant System (RCS) cooling provided by the Normal Residual Heat Removal System (RNS).	24 hours
	<u>AND</u>		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.3 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	--------------------------------NOTE-------------------------------- Only required to be performed prior to entry into MODE 2. -- Verify the closure time of each MFIV and MFCV is within limits on an actual or simulated actuation signal.	In accordance with the Inservice Testing Program

3.7 PLANT SYSTEMS

3.7.4 Secondary Specific Activity

LCO 3.7.4 The specific activity of the secondary coolant shall be ≤ 0.01 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.	6 hours
	AND	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify the specific activity of the secondary coolant ≤ 0.01 μCi/gm DOSE EQUIVALENT I-131.	31 days

3.7 PLANT SYSTEMS

3.7.5 Spent Fuel Pool Water Level

LCO 3.7.5 The spent fuel pool water level shall be ≥ 23 ft above the top of irradiated fuel assemblies seated in the storage racks.

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

ACTIONS

---NOTE---

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent fuel pool water level < 23 ft.	A.1 Suspend movement of irradiated fuel assemblies in the spent fuel pool.	Immediately
	<u>AND</u>	
	A.2 Initiate action to restore water level to ≥ 23 ft.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify the spent fuel pool water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated in the storage racks.	7 days

3.7 PLANT SYSTEMS

3.7.6 Main Control Room Emergency Habitability System (VES)

LCO 3.7.6 The VES shall be OPERABLE.

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One valve or damper inoperable.	A.1 Restore valve or damper to OPERABLE status.	7 days
B. One Protection and Safety Monitoring System (PMS) division inoperable in one or more main control room (MCR) load shed panel(s).	B.1 Restore PMS division in both MCR load shed panels to OPERABLE status.	7 days
C. Thermal mass of one or more required heat sinks(s) not within limit(s).	C.1 Restore required heat sink air temperatures to within limit(s).	24 hours
	<u>AND</u>	
	C.2 Restore thermal mass of required heat sink(s) to within limit(s).	5 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. VES inoperable due to inoperable MCRE boundary in MODE 1, 2, 3, or 4.	D.1	Initiate action to implement mitigating actions.	Immediately
	AND		
	D.2	Verify mitigating actions ensure MCRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.	24 hours
	AND		
	D.3	Restore MCRE boundary to OPERABLE status.	90 days
E. One bank of VES air tanks inoperable.	E.1	Verify that the OPERABLE tanks contain > 245,680 scf of compressed air.	2 hours AND Once per 12 hours thereafter
	AND		
	E.2	Verify Nuclear Island Non Radioactive Ventilation System (VBS) MCRE ancillary fans and supporting equipment are available.	24 hours
	AND		
	E.3	Restore VES to OPERABLE status.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met in MODE 1, 2, 3, or 4. <u>OR</u> VES inoperable for reasons other than Condition A, B, C, D, or E in MODE 1, 2, 3, or 4.	F.1 <u>AND</u> F.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours
G. Required Action and associated Completion Time of Condition A, B, C, or E not met during movement of irradiated fuel. <u>OR</u> VES inoperable for reasons other than Condition A, B, C, or E during movement of irradiated fuel. <u>OR</u> VES inoperable due to inoperable MCRE boundary during movement of irradiated fuel.	G.1	Suspend movement of irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify the compressed air storage tanks contain > 327,574 scf of compressed air.	24 hours
SR 3.7.6.2	Verify thermal mass for the following heat sink locations is within limit: a. MCRE; b. Each required individual room adjacent to and below MCRE; c. Each required room-pair adjacent to and below MCRE; and d. Room above MCRE.	24 hours
SR 3.7.6.3	Operate VES for ≥ 15 minutes.	31 days on a STAGGERED TEST BASIS
SR 3.7.6.4	Verify each VES air header manual isolation valve is in an open position.	31 days
SR 3.7.6.5	Verify the air quality of the air storage tanks meets the requirements of Appendix C, Table C-1 of ASHRAE Standard 62 with a pressure dew point of ≤ 40°F at ≥ 3400 psig.	92 days
SR 3.7.6.6	Verify all MCRE isolation valves are OPERABLE and will close upon receipt of an actual or simulated actuation signal.	24 months
SR 3.7.6.7	Verify each VES pressure relief isolation valve within the MCRE pressure boundary is OPERABLE.	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.6.8	Verify each VES pressure relief damper is OPERABLE.	24 months
SR 3.7.6.9	Perform required MCRE unfiltered air inleakage testing in accordance with the Main Control Room Envelope Habitability Program.	In accordance with the Main Control Room Envelope Habitability Program
SR 3.7.6.10	Perform required VES passive filtration system filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.6.11	Verify the MCR load shed function actuates upon receipt of an actual or simulated actuation signal.	24 months
SR 3.7.6.12	Verify each VES main air delivery isolation valve actuates to the correct position upon receipt of an actual or simulated actuation signal.	24 months

3.7 PLANT SYSTEMS

3.7.7 Startup Feedwater Isolation and Control Valves

LCO 3.7.7 Each startup feedwater isolation valve and control valve shall be OPERABLE.

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

ACTIONS

---NOTES---

1. Flow paths may be unisolated intermittently under administrative controls.

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more flow paths with one inoperable valve.	A.1 Isolate the affected flow path. <u>AND</u> A.2 Verify affected flow path is isolated.	72 hours Once per 7 days
B. One flow path with two inoperable valves.	B.1 Isolate the affected flow path.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u>	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2	Be in MODE 4 with the Reactor Coolant System (RCS) cooling provided by the Normal Residual Heat Removal System (RNS).	24 hours
	AND		
	C.3	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	Verify each startup feedwater isolation and control valve is OPERABLE.	In accordance with the Inservice Testing Program
SR 3.7.7.2	Verify each startup feedwater isolation and control valve actuates to the isolation position on an actual or simulated actuation signal.	24 months

3.7 PLANT SYSTEMS

3.7.8 Main Steam Line Leakage

LCO 3.7.8 Main steam line leakage through the pipe walls inside containment shall be ≤ 0.5 gpm.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Main steam line leakage > 0.5 gpm.	A.1 Be in MODE 3. <u>AND</u> A.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	Verify main steam line leakage into the containment sump is ≤ 0.5 gpm.	Per SR 3.4.7.1

3.7 PLANT SYSTEMS

3.7.9 Spent Fuel Pool Makeup Water Sources

LCO 3.7.9 Spent fuel pool makeup water sources shall be OPERABLE.

--NOTES--

1. OPERABILITY of the cask washdown pit is required when the spent fuel pool decay heat is > 4.0 MWt and ≤ 7.0 MWt.

2. OPERABILITY of the cask loading pit is required when the spent fuel pool decay heat is > 5.0 MWt and ≤ 7.0 MWt.

3. OPERABILITY of the Passive Containment Cooling Water Storage Tank (PCCWST) is required as a spent fuel pool makeup water source when the spent fuel pool decay heat is > 7.0 MWt. If the reactor decay heat is > 7.0 MWt, the PCCWST must be exclusively available for containment cooling in accordance with LCO 3.6.6.

4. OPERABILITY of the fuel transfer canal is required.

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

ACTIONS

--NOTE--

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required spent fuel pool makeup water sources inoperable.	A.1 Initiate action to restore the required makeup water source(s) to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	-------------------------------NOTE------------------------------- Only required to be performed when spent fuel pool decay heat is > 7.0 MWt. -- Verify one passive containment cooling system motor-operated valve in each flow path is closed and locked, sealed, or otherwise secured in position.	7 days
SR 3.7.9.2	-------------------------------NOTE------------------------------- Only required to be performed when spent fuel pool decay heat is > 7.0 MWt. -- Verify the PCCWST volume is ≥ 756,700 gallons.	7 days
SR 3.7.9.3	-------------------------------NOTE------------------------------- Only required to be performed when spent fuel pool decay heat is ≤ 7.0 MWt. -- Verify the water level in the cask washdown pit is ≥ 13.75 ft.	31 days
SR 3.7.9.4	-------------------------------NOTE------------------------------- Only required to be performed when spent fuel pool decay heat is > 5.0 MWt and ≤ 7.0 MWt. -- Verify the cask loading pit has water level of ≥ 43.9 ft and is in communication with the spent fuel pool.	31 days
SR 3.7.9.5	Verify the fuel transfer canal is in communication with the spent fuel pool.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.9.6	Verify the spent fuel pool makeup isolation valves PCS-PL-V009, PCS-PL-V045, PCS-PL-V051, SFS-PL-V042, SFS-PL-V045, SFS-PL-V049, SFS-PL-V066, and SFS-PL-V068 are OPERABLE in accordance with the Inservice Testing Program.	In accordance with the Inservice Testing Program

3.7 PLANT SYSTEMS

3.7.10 Steam Generator (SG) Isolation Valves

LCO 3.7.10 Each SG power operated relief valve (PORV), PORV block valve, and SG blowdown isolation valve shall be OPERABLE.

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

--NOTE--
PORV OPERABILITY is not required in MODE 4 with the Reactor Coolant System (RCS) being cooled by the Normal Residual Heat Removal System (RNS).

ACTIONS

--NOTES--
1. SG blowdown flow path(s) may be unisolated intermittently under administrative controls.

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SG PORV flow paths with one isolation valve inoperable.	A.1 Isolate the flow path by use of at least one closed and deactivated automatic valve. AND	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	-------------NOTES------------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means. ------------------------------------ Verify the affected flow path is isolated.	 Once per 31 days
B. One or more SG blowdown flow paths with one isolation valve inoperable.	B.1	Isolate the flow path by one closed valve.	72 hours
	<u>AND</u>		
	B.2	Verify the affected flow path is isolated.	Once per 7 days
C. One or more SG PORV flow paths with two isolation valves inoperable.	C.1	Isolate the affected flow path by use of at least one closed and deactivated automatic valve.	8 hours
D. One or more SG blowdown flow paths with two isolation valves inoperable.	D.1	Isolate the flow path by one closed valve.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4 with the RCS cooling provided by the RNS. <u>AND</u> E.3 --------------NOTE-------------- Not applicable for inoperable PORV(s). ------------------------------------- Be in MODE 5.	6 hours 24 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify each SG PORV, PORV block valve, and SG blowdown isolation valve strokes closed.	In accordance with the Inservice Testing Program
SR 3.7.10.2	Verify the isolation time of each PORV block valve and SG blowdown isolation valve is within limits.	In accordance with the Inservice Testing Program
SR 3.7.10.3	Verify each SG PORV, PORV block valve, and SG blowdown isolation valve actuates to the isolation position on an actual or simulated actuation signal.	24 months

3.7 PLANT SYSTEMS

3.7.11 Spent Fuel Pool Boron Concentration

LCO 3.7.11 The spent fuel pool boron concentration shall be ≥ 2300 ppm.

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

ACTIONS

---NOTE---

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent fuel pool boron concentration not within limit.	A.1 Suspend movement of fuel assemblies in the spent fuel pool.	Immediately
	<u>AND</u>	
	A.2 Initiate action to restore spent fuel pool boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify the spent fuel pool boron concentration is within limit.	7 days

3.7 PLANT SYSTEMS

3.7.12 Spent Fuel Pool Storage

LCO 3.7.12 The combination of initial enrichment and burnup of each fuel assembly stored in Region 2 shall be within the limits specified in Figure 3.7.12-1.

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

ACTIONS

---NOTE---

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Initiate action to move the noncomplying fuel assembly to an acceptable storage location.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure 3.7.12-1	Prior to storing the fuel assembly in Region 2

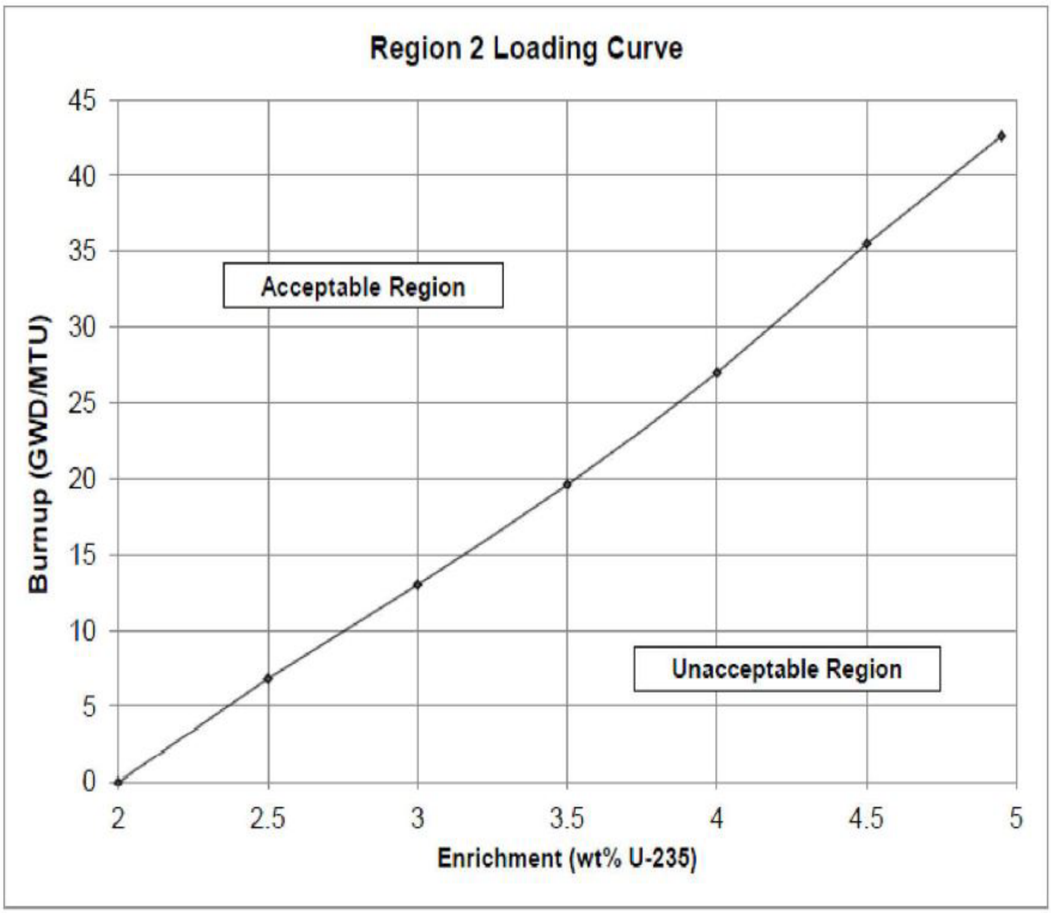


Figure 3.7.12-1 (page 1 of 1)
Minimum Fuel Assembly Burnup versus Initial Enrichment for Region 2 Spent Fuel Cells

3.7 PLANT SYSTEMS

3.7.13 Spent Fuel Pool Cooling System (SFS) Containment Isolation Valves

LCO 3.7.13 The SFS containment isolation valves shall be OPERABLE.

APPLICABILITY: MODE 6 with refueling cavity and spent fuel pool volumes in communication.

ACTIONS

---NOTES---

1. Penetration flow path(s) may be unisolated intermittently under administrative controls.

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one or more SFS containment isolation valves inoperable.	A.1 Isolate affected penetration flow path.	24 hours
	<u>AND</u>	
	A.2.1 Isolate affected penetration flow path by use of at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	7 days
	<u>OR</u>	
	A.2.2 Verify affected penetration flow path is isolated.	Once per 7 days
B. Required Action and associated Completion Time not met.	B.1 Declare the In-containment Refueling Water Storage Tank inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.13.1	For SFS containment isolation valves required to be OPERABLE, the following SRs are applicable: SR 3.6.3.4 SR 3.6.3.5	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 DC Sources – Operating

LCO 3.8.1 The Division A, B, C, and D Class 1E DC power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more battery chargers in one division inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. AND A.2 Verify battery float current ≤ 2 amps. AND A.3 Restore battery charger(s) to OPERABLE status.	6 hours Once per 24 hours 7 days
B. One or more battery chargers in two divisions inoperable.	B.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. AND B.2 Verify battery float current ≤ 2 amps. AND	2 hours Once per 24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Restore battery charger(s) to OPERABLE status.	7 days
C. One or more batteries in one division inoperable.	C.1	Restore batteries to OPERABLE status.	6 hours
D. One or more batteries in two divisions inoperable.	D.1	Restore batteries to OPERABLE status.	2 hours
E. One DC electrical power subsystem inoperable for reasons other than Condition A or C.	E.1	Restore DC electrical power subsystem to OPERABLE status.	6 hours
F. Two DC electrical power subsystems inoperable for reasons other than Condition B or D.	F.1	Restore DC electrical power subsystem to OPERABLE status.	2 hours
G. Required Action and associated Completion Time not met.	G.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	G.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	7 days

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.2	Verify each battery charger supplies ≥ 150 amps 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 24 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.	24 months
SR 3.8.1.3	-------------------------------NOTE------------------------------- The modified performance discharge test in SR 3.8.7.6 may be performed in lieu of SR 3.8.1.3. --- 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.	24 months
SR 3.8.1.4	-------------------------------NOTE------------------------------- Only required to be met when the main control room air supply radiation monitor sample pump is energized. --- Verify main control room air supply radiation monitor sample pump deenergizes on an actual or simulated actuation signal.	24 months

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 DC Sources – Shutdown

LCO 3.8.2 Class 1E DC electrical power subsystems shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.6, “Distribution Systems – Shutdown.”

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required battery chargers in one division inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established voltage.	6 hours
	<u>AND</u>	
	A.2 Verify battery float current ≤ 2 amps.	Once per 24 hours
	<u>AND</u>	
	A.3 Restore battery charger(s) to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more required DC electrical power subsystems inoperable for reasons other than Condition A. OR Required Action and associated Completion Time of Condition A not met.	B.1 Declare affected required features inoperable.	Immediately
	OR	
	B.2.1 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	B.2.2 Suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	B.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	----------------------------NOTE---------------------------- The following SRs are not required to be performed: SR 3.8.1.2 and SR 3.8.1.3. -- The following SRs are applicable: SR 3.8.1.1 SR 3.8.1.2 SR 3.8.1.3 SR 3.8.1.4	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Inverters – Operating

LCO 3.8.3 The Division A, B, C, and D inverters shall be OPERABLE.

---NOTES---
One inverter may be disconnected from its associated DC bus for ≤ 72 hours to perform an equalizing charge on its associated battery, providing:

1. The associated AC instrument and control bus is energized from its Class 1E voltage regulating transformer; and

2. All other AC instrument and control buses are energized from their associated OPERABLE inverters.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or two inverters within one division inoperable.	A.1	------------NOTE---------------- Enter applicable Conditions and Required Actions of LCO 3.8.5, “Distribution Systems – Operating,” with any AC instrument and control bus de-energized. ----------------------------------- Restore inverter(s) to OPERABLE status.	 24 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	B.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify correct inverter voltage, frequency, and alignment to required AC instrument and control buses.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 Inverters – Shutdown

LCO 3.8.4 Inverters shall be OPERABLE to support the onsite Class 1E power distribution subsystems required by LCO 3.8.6, "Distribution Systems – Shutdown."

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

ACTIONS

---NOTE---

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable	A.1 Declare affected required features inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.2 Suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<u>AND</u>	

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify correct inverter voltage, frequency, and alignment to required AC instrument and control buses.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 Distribution Systems – Operating

LCO 3.8.5 The following Division A, B, C, and D electrical power distribution subsystems shall be OPERABLE:

a. DC; and

b. AC instrument and control.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One AC instrument and control division inoperable.	A.1 Restore AC instrument and control division to OPERABLE status.	6 hours
B. One DC division inoperable.	B.1 Restore DC division to OPERABLE status.	6 hours
C. Two AC instrument and control divisions inoperable	C.1 Restore one AC instrument and control division to OPERABLE status.	2 hours
D. Two DC divisions inoperable.	D.1 Restore one DC division to OPERABLE status.	2 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Two inoperable divisions that result in a loss of safety function.	F.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	Verify correct breaker and switch alignments and voltage to required DC and AC instrument and control electrical power distribution subsystems.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Distribution Systems – Shutdown

LCO 3.8.6 The necessary portions of DC and AC instrument and control electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

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

ACTIONS

--NOTE--

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC or AC instrument and control electrical power distribution subsystems inoperable.	A.1 Declare affected required features inoperable.	Immediately
	OR	
	A.2.1 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.2 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate actions to restore required DC and AC instrument and control electrical power distribution subsystems to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify correct breaker and switch alignments and voltage to required DC and AC instrument and control electrical power distribution subsystems.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Battery Parameters

LCO 3.8.7 Battery Parameters for Division A, B, C, and D DC electrical power subsystem batteries shall be within limits.

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

ACTIONS

---NOTE---

Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more batteries in one division with one or more battery cells with float voltage < 2.07 V.	A.1	Perform SR 3.8.1.1.	2 hours
	<u>AND</u>		
	A.2	Perform SR 3.8.7.1.	2 hours
	<u>AND</u>		
	A.3	Restore affected cell float voltage ≥ 2.07 V.	24 hours
B. One or more batteries in one division with float current > 2 amps.	B.1	Perform SR 3.8.1.1.	2 hours
	<u>AND</u>		
	B.2	Restore battery float current to ≤ 2 amps.	24 hours

ACTIONS (continued)

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time not met. <u>OR</u> One or more batteries in one division with float current > 2 amps and with one or more battery cells with float voltage < 2.07 V.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.7.1	-------------------------------NOTE------------------------------- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.1.1. --- Verify each battery float current is ≤ 2 amps.	7 days
SR 3.8.7.2	Verify each battery pilot cell float voltage is ≥ 2.07 V.	31 days
SR 3.8.7.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	31 days
SR 3.8.7.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.7.5	Verify each battery connected cell float voltage is ≥ 2.07 V.	92 days
SR 3.8.7.6	Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	60 months or 25% of the expected life, whichever is less <u>AND</u> 12 months when battery shows degradation, or has reached 85% of the expected life with capacity < 100% of manufacturer's rating <u>AND</u> 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentration of the Reactor Coolant System (RCS), the fuel transfer canal, and the refueling cavity shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

---NOTE---
Applicable to the fuel transfer canal and the refueling cavity only when connected to the RCS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Boron concentration not within limit.	A.1 Suspend positive reactivity additions.	Immediately
	<u>AND</u>	
	A.2 Initiate actions 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.	72 hours

3.9 REFUELING OPERATIONS

3.9.2 Unborated Water Source Flow Paths

LCO 3.9.2 One valve in each unborated water source flow path shall be secured in the closed position.

APPLICABILITY: MODE 6.

ACTIONS

--- NOTE ---

Separate Condition entry is allowed for each unborated water source flow path.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ------------NOTE ----------- Required Action A.2 must be completed whenever Condition A is entered. ------------------------------- One or more unborated water source flow paths with no valve secured in the closed position.	A.1 Initiate actions to secure one valve in the flow path in the closed position. <u>AND</u> A.2 Perform SR 3.9.1.1.	Immediately 4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Verify one valve in each unborated water source flow path is secured in the closed position.	31 days

3.9 REFUELING OPERATIONS

3.9.3 Nuclear Instrumentation

LCO 3.9.3 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required source range neutron flux monitor inoperable.	A.1 Suspend positive reactivity additions.	Immediately
	AND	
	A.2 Suspend operations that would cause introduction into the Reactor Coolant System (RCS), coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
B. Two required source range neutron flux monitors inoperable.	B.1 Initiate action to restore one source range neutron flux monitor to OPERABLE status.	Immediately
	AND	
	B.2 Perform SR 3.9.1.1.	Once per 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Perform CHANNEL CHECK.	12 hours
SR 3.9.3.2	--------------------------------NOTE------------------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION.	24 months

3.9 REFUELING OPERATIONS

3.9.4 Refueling Cavity Water Level

LCO 3.9.4 Refueling Cavity Water Level shall be maintained ≥ 23 ft above the top of the reactor vessel flange.

APPLICABILITY: During movement of irradiated fuel assemblies within containment.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify refueling cavity water level is ≥ 23 ft above the top of reactor vessel flange.	24 hours

3.9 REFUELING OPERATIONS

3.9.5 Decay Time

LCO 3.9.5 The reactor shall be subcritical for ≥ 48 hours.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Reactor subcritical < 48 hours.	A.1	Suspend all operations involving movement of irradiated fuel in the reactor pressure vessel.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify the reactor has been subcritical for ≥ 48 hours by verification of the date and time of subcriticality.	Prior to movement of irradiated fuel in the reactor pressure vessel

4.0 DESIGN FEATURES

4.1 Site Location

[Site-specific information to be provided by combined license applicant.]

4.1.1 Site and Exclusion Boundaries

[Site-specific information to be provided by the combined license applicant.]

4.1.2 Low Population Zone (LPZ)

[Site-specific information to be provided by the combined license applicant.]

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain 157 fuel assemblies. Each assembly shall consist of a matrix of fuel rods clad with a zirconium based alloy and containing an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material. Limited substitutions of zirconium based 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 fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.

4.2.2 Control Rod and Gray Rod Assemblies

The reactor core shall contain 53 Rod Cluster Control Assemblies (RCCAs), each with 24 rodlets per RCCA. The RCCA absorber material shall be silver indium cadmium as approved by the NRC.

Additionally, there are 16 low worth Gray Rod Cluster Assemblies (GRCAs), each with 24 rodlets per GRCA, which, in conjunction with the RCCAs, are used to augment Mechanical Shim (MSHIM) operation.

4.0 DESIGN FEATURES

4.3 Fuel Storage

4.3.1 Criticality

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

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

b. $k_{eff} \leq 0.95$ if flooded with unborated water which includes an allowance for uncertainties (Region 1 racks);

c. A nominal 10.93 inch center-to-center distance between fuel assemblies placed in Region 1 of the spent fuel storage racks;

d. A nominal 9.04 inch center-to-center distance between fuel assemblies placed in Region 2 of the spent fuel storage racks;

e. A nominal 11.65 inch center-to-center distance between fuel assemblies placed in the Defective Fuel Cells;

f. New or partially spent fuel assemblies with any discharge burnup may be allowed unrestricted storage in Region 1 and the Defective Fuel Cells of Figure 4.3-1;

g. Partially spent fuel assemblies meeting the initial enrichment and burnup requirements of LCO 3.7.12, “Spent Fuel Pool Storage,” may be stored in Region 2 of Figure 4.3-1; and

h. $k_{eff} < 1.0$ if flooded with unborated water and $k_{eff} \leq 0.95$ if flooded with borated water at a minimum soluble boron concentration described in the Bases for LCO 3.7.12 for normal and design basis criticality-related accident conditions, which includes an allowance for uncertainties (Region 2 racks).

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

a. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent;

b. The maximum k_{eff} value, including all biases and uncertainties, shall be less than or equal to 0.95 with full density unborated water;

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

c. The maximum k_{eff} value, including all biases and uncertainties, shall be less than or equal to 0.98 with optimum moderation and full reflection conditions; and

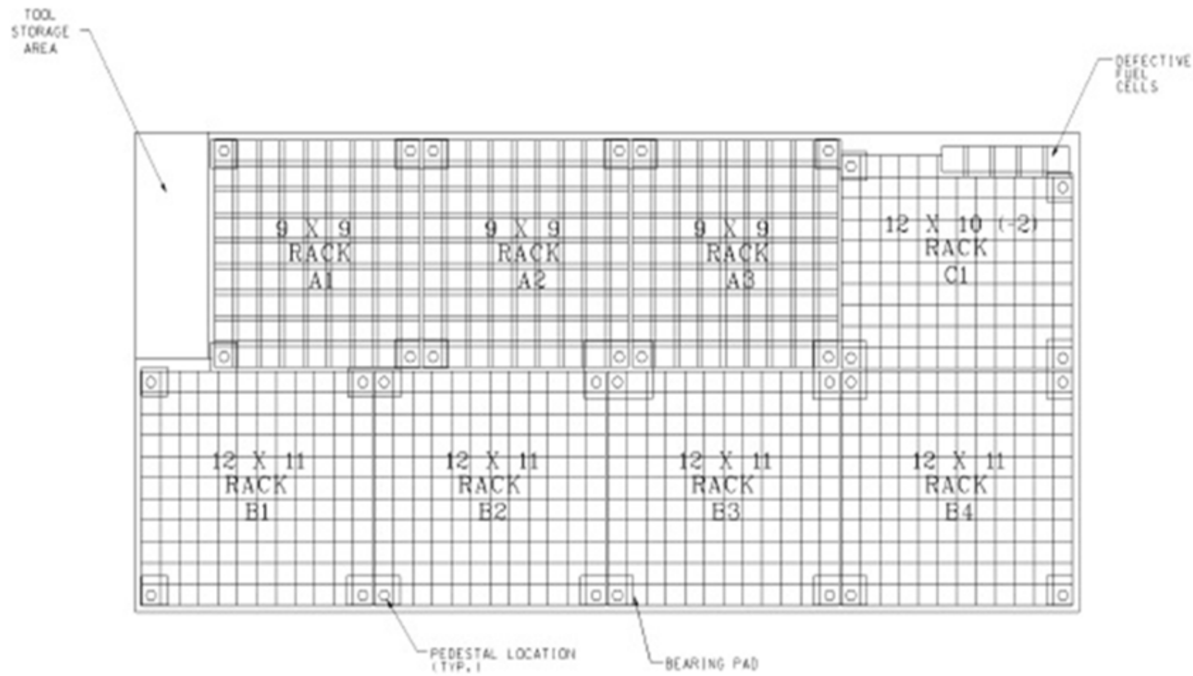
d. A nominal 10.90 inch center-to-center distance between fuel assemblies placed in the new fuel storage racks.

4.3.2 Drainage

The spent fuel pool is designed and shall be maintained to prevent inadvertent draining of the pool below a minimum water depth of ≥ 23 ft above the surface of the fuel storage racks.

4.3.3 Capacity

The spent fuel pool is designed and shall be maintained with a storage capacity limited to no more than 889 fuel assemblies.



Region 1 (A1, A2, A3) – 243 locations

Region 2 (B1, B2, B3, B4, C1) – 641 locations

Defective Fuel Cells (DFCs) – 5 locations

Total Storage Locations – 889

Figure 4.3-1 (page 1 of 1)
Discrete Two Region Spent Fuel Pool Rack Layout

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

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

The [Plant Manager] or his designee shall approve, prior to implementation, each proposed test, experiment or modification to systems or equipment that affect nuclear safety.

5.1.2 The [Shift Supervisor (SS)] shall be responsible for the control room command function. During any absence of the [SS] 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 [SS] 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 [FSAR/QA Plan];

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

b. Shift crew composition may be less than the minimum requirement of 10 CFR 50.54(m)(2)(i) and 5.2.2.a and 5.2.2.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.

5.2 Organization

5.2.2 Unit Staff (continued)

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

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

e. An individual shall provide advisory technical support to the unit operations shift crew in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit. This individual shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift.

5.0 ADMINISTRATIVE CONTROLS

5.3 Unit Staff Qualifications

-- REVIEWER'S NOTE --
[Minimum qualifications for members of the unit staff shall be specified by use of an overall qualification statement referencing an ANSI Standard acceptable to the NRC staff or by specifying individual position qualifications. Generally, the first method is preferable; however, the second method is adaptable to those unit staffs requiring special qualification statements because of unique organizational structures.]

5.3.1 Each member of the unit staff shall meet or exceed the minimum qualifications of [Regulatory Guide 1.8, Revision 3, 2000, or more recent revisions, or ANSI Standards acceptable to the NRC staff] [, with the following exception:

a. During cold license operator training through the first refueling outage, Regulatory Position C.1.b of Regulatory Guide1.8, Revision 2, 1987 applies: cold license operator candidates meet the training elements defined in ANSI/ANS 3.1-1993 but are exempt from the experience requirements defined in ANSI/ANS 3.1-1993].

[The staff not covered by Regulatory Guide 1.8 shall meet or exceed the minimum qualifications of Regulations, Regulatory Guides, or ANSI Standards acceptable to NRC staff.]

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

5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

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

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

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

c. Quality assurance for effluent and environmental monitoring;

d. Fire Protection Program implementation; and

e. All programs specified in Specification 5.5.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

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

5.5.1 Offsite Dose Calculation Manual (ODCM)

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

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

c. Licensee initiated changes to the ODCM:

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

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

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

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

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

5.5 Programs and Manuals

5.5.2 Radioactive Effluent Control Program

a. 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:

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

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

3. 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;

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

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

6. 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;

5.5 Programs and Manuals

5.5.2 Radioactive Effluent Control Program (continued)

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

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

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

8. 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;

9. 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

10. 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.

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

5.5.3 Inservice Testing Program

The Inservice Testing Program is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

5.5 Programs and Manuals

5.5.4 Steam Generator (SG) Program

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

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

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

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

   2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 150 gpd per SG.

5.5 Programs and Manuals

5.5.4 Steam Generator (SG) Program (continued)

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.7, "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. A degradation assessment shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

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

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

5.5 Programs and Manuals

5.5.4 Steam Generator (SG) Program (continued)

is scheduled to be inspected in the inspection period. Each inspection period defined below may be extended up to 3 effective full power months to include a SG inspection outage in an inspection period and the subsequent inspection period begins at the conclusion of the included SG inspection outage.

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

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

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

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

3. If crack indications are found in any SG tube, then the next inspection for each affected and potentially affected SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever results in more frequent inspections). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary to secondary LEAKAGE.

5.5.5 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;

5.5 Programs and Manuals

5.5.5 Secondary Water Chemistry Program (continued)

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.

5.5.6 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.

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

5.5 Programs and Manuals

5.5.7 Safety Function Determination Program (SFDP)

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

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

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

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

   4. Other appropriate limitations and remedial or compensatory actions.

b. A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

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

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

   3. A required system redundant to the support system(s) for the supported systems b.1 and b.2 above is also inoperable.

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

5.5 Programs and Manuals

5.5.8 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 Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, as modified by approved exceptions.

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is 58.1 psig. The containment design pressure is 59 psig.

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

d. Leakage Rate acceptance criteria are:

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

   2. Air lock testing acceptance criteria are:

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

      ii. For each door, leakage rate is $\leq 0.01\ L_a$ when pressurized to ≥ 10 psig.

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

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

5.5.9 System Level OPERABILITY Testing Program

The System Level OPERABILITY Testing Program provides requirements for performance tests of passive systems. The System Level OPERABILITY Test Requirements specified in FSAR Table 3.9-17 apply when specified by individual Surveillance Requirements.

5.5 Programs and Manuals

5.5.9 System Level OPERABILITY Testing Program (continued)

a. The provisions of SR 3.0.2 are applicable to the test frequencies specified in FSAR Table 3.9-17 for performing system level OPERABILITY testing activities; and

b. The provisions of SR 3.0.3 are applicable to system level OPERABILITY testing activities.

5.5.10 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Table 3.9-1 cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.11 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 exceptions to RG 1.129, Revision 2:

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

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

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

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

5.5 Programs and Manuals

5.5.11 Battery Monitoring and Maintenance Program (continued)

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.

5.5.12 Main Control Room Envelope Habitability Program

A Main Control Room Envelope (MCRE) Habitability Program shall be established and implemented to ensure that MCRE habitability is maintained such that, with an OPERABLE Main Control Room Emergency Habitability System (VES), MCRE 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 MCRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident. The program shall include the following elements:

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

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

5.5 Programs and Manuals

5.5.12 Main Control Room Envelope Habitability Program (continued)

c. Requirements for (i) determining the unfiltered air inleakage past the MCRE boundary into the MCRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing MCRE 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 MCRE pressure relative to all external areas adjacent to the MCRE boundary during the pressurization mode of operation of one VES air delivery flow path, operating at the required flow rate of 65 ± 5 scfm, at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 month assessment of the MCRE boundary.

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

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

5.5.13 Ventilation Filter Testing Program (VFTP)

a. A program shall be established to implement the following required testing of the Main Control Room Emergency Habitability System (VES).

Tests described in Specifications 5.5.13.a.1 and 5.5.13.a.2 shall be performed: i) initially, ii) once each 24 months, iii) after partial or complete replacement of a high efficiency particulate air (HEPA) filter or charcoal adsorber, iv) following detection of, or evidence of, penetration or intrusion of water or other material into any portion of the VES that may have an adverse effect on the functional capability of the filters, and v) following painting, fire, or chemical release in any ventilation zone communicating with the VES that may have an adverse effect on the functional capability of the system.

5.5 Programs and Manuals

5.5.13 Ventilation Filter Testing Program (VFTP) (continued)

Tests described in Specification 5.5.13.a.3 shall be performed: i) after each 720 hours of system operation or at least once each 24 months, whichever comes first, ii) following painting, fire, or chemical release in any ventilation zone communicating with the VES that may have an adverse effect on the functional capability of the carbon media, and iii) following detection of, or evidence of, penetration or intrusion of water or other material into any portion of the VES that may have an adverse effect on the functional capability of the carbon media.

Tests described in Specification 5.5.13.a.4 shall be performed once per 24 months.

1. Demonstrate for the VES that an inplace test of the HEPA filter shows a penetration and system bypass ≤ 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 3, and ASME N510-1989 at a flow rate at least 600 cfm greater than the VES makeup flow rate.

Ventilation System	Flow Rate
VES	≥ 600 + VES makeup flow rate (cfm)

2. Demonstrate for the VES that an inplace test of the charcoal adsorber shows a penetration and system bypass ≤ 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 3, and ASME N510-1989 at a flow rate at least 600 cfm greater than the VES makeup flow rate.

Ventilation System	Flow Rate
VES	≥ 600 + VES makeup flow rate (cfm)

3. Demonstrate for the VES that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 3, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity (RH) specified below.

Ventilation System	Penetration	RH
VES	5%	95%

5.5 Programs and Manuals

5.5.13 Ventilation Filter Testing Program (VFTP) (continued)

4. Demonstrate for the VES that the pressure drop across the combined HEPA filter, the charcoal adsorber, and the post filter is less than the value specified below when tested at the system flow rate specified below +/- 10%.

Ventilation System	Delta P	Flow Rate
VES	5 in. water gauge	660 cfm

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

5.5.14 Setpoint Program (SP)

a. The Setpoint Program (SP) implements the regulatory requirement of 10 CFR 50.36(c)(1)(ii)(A) that technical specifications will include items in the category of limiting safety system settings (LSSS), which are settings for automatic protective devices related to those variables having significant safety functions.

b. The Nominal Trip Setpoint (NTS), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) for each Technical Specification required automatic protection instrumentation function shall be calculated in conformance with WCAP-16361-P, “Westinghouse Setpoint Methodology for Protection Systems - AP1000,” February 2011.

c. For each Technical Specification required automatic protection instrumentation function, performance of a CHANNEL CALIBRATION surveillance “in accordance with the Setpoint Program” shall include the following:

1. The as-found value of the instrument channel trip setting shall be compared with the previously recorded as-left value.

   i. If the as-found value of the instrument channel trip setting differs from the previously recorded as-left value by more than the pre-defined test acceptance criteria band (i.e., the specified AFT), then the instrument channel shall be evaluated to verify that it is functioning in accordance with its design basis before declaring the Surveillance Requirement met and returning the instrument channel to service. An instrument channel is determined to be functioning in accordance with its design basis if it can be set to

5.5 Programs and Manuals

5.5.14 Setpoint Program (SP) (continued)

within the ALT. This as-found condition shall be entered into the plant's corrective action program.

ii. If the as-found value of the instrument channel trip setting is less conservative than the specified AFT, the Surveillance Requirement is not met and the instrument channel shall be immediately declared inoperable.

2. The instrument channel trip setting shall be set to a value within the specified ALT around the specified NTS at the completion of the Surveillance; otherwise, the Surveillance Requirement is not met and the instrument channel shall be immediately declared inoperable.

d. The difference between the instrument channel trip setting as-found value and the previously recorded as-left value for each Technical Specification required automatic protection instrumentation function shall be trended and evaluated to verify that the instrument channel is functioning in accordance with its design basis.

e. The SP shall establish a document containing the current value of the specified NTS, AFT, and ALT for each Technical Specification required automatic protection instrumentation function and references to the calculation documentation. Changes to this document shall be governed by the regulatory requirement of 10 CFR 50.59. In addition, changes to the specified NTS, AFT, and ALT values shall be governed by the approved setpoint methodology. This document, including any revisions or supplements, shall be provided upon issuance to the NRC.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

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

5.6.1 Annual Radiological Environmental Operating Report

---NOTE---
A single submittal may be made for a multiple unit station. The submittal should combine sections common to all units at the station.

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

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

5.6.2 Radioactive Effluent Release Report

---NOTE---
A single submittal may be made for a multiple unit station. The submittal shall combine sections common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.

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

5.6 Reporting Requirements

5.6.3 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following Specifications:

2.1.1, "Reactor Core SLs"
3.1.1, "SHUTDOWN MARGIN (SDM)"
3.1.3, "Moderator Temperature Coefficient (MTC)"
3.1.5, "Shutdown Bank Insertion Limits"
3.1.6, "Control Bank Insertion Limits"
3.2.1, "Heat Flux Hot Channel Factor (F_Q (Z)) (Constant Axial Offset Control (CAOC) W(Z) Methodology)"
3.2.2, "Nuclear Enthalpy Rise Hot Channel Factor ($F^N_{\Delta H}$)"
3.2.3, "AXIAL FLUX DIFFERENCE (AFD) (Constant Axial Offset Control (CAOC) Methodology)"
3.2.5, "On-line Power Distribution Monitoring System (OPDMS)-Monitored Parameters"
3.4.1, "RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits"
3.9.1, "Boron Concentration"

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985 (Westinghouse Proprietary) and WCAP-9273-NP-A (Non-Proprietary).

   (Methodology for Specifications 3.1.1 - Shutdown Margin (SDM), 3.1.3 - Moderator Temperature Coefficient, 3.1.5 - Shutdown Bank Insertion Limits, 3.1.6 - Control Bank Insertion Limits, 3.2.1 - Heat Flux Hot Channel Factor, 3.2.2 - Nuclear Enthalpy Rise Hot Channel Factor, 3.2.3 - AXIAL FLUX DIFFERENCE, 3.4.1 - RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits, and 3.9.1 - Boron Concentration.),

2a. WCAP-8385, "Power Distribution Control and Load Following Procedures - Topical Report," September 1974 (Westinghouse Proprietary) and WCAP-8403 (Non-Proprietary).

   (Methodology for Specification 3.2.3 - AXIAL FLUX DIFFERENCE (Constant Axial Offset Control).

5.6 Reporting Requirements

5.6.3 CORE OPERATING LIMITS REPORT (COLR) (continued)

2b. T. M. Anderson to K. Kniel (Chief of Core Performance Branch, NRC) January 31, 1980 - Attachment: Operation and Safety Analysis Aspects of an Improved Load Follow Package.

(Methodology for Specification 3.2.3 - AXIAL FLUX DIFFERENCE (Constant Axial Offset Control).)

2c. NUREG-0800, Standard Review Plan, U.S. Nuclear Regulatory Commission, Section 4.3, Nuclear Design, July 1981. Branch Technical Position CPB 4.3-1, Westinghouse Constant Axial Offset Control (CAOC), Rev. 2, July 1981.

(Methodology for Specification 3.2.3 - AXIAL FLUX DIFFERENCE (Constant Axial Offset Control).)

3. WCAP-10216-P-A, Revision 1A, “Relaxation of Constant Axial Offset Control F_Q Surveillance Technical Specification,” February 1994 (Westinghouse Proprietary) and WCAP-10217-A (Non-Proprietary).

(Methodology for Specification 3.2.1 - Heat Flux Hot Channel Factor (W(Z) Surveillance Requirements for F_Q Methodology).)

4a. WCAP-16009-P-A, “Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM),” Revision 1, January 2005 (Westinghouse Proprietary) and WCAP-16009-NP-A (Non-Proprietary).

(Methodology for Specification 3.2.1 - Heat Flux Hot Channel Factor and Specification 3.2.2 - Nuclear Enthalpy Rise Hot Channel Factor.)

4b. APP-GW-GLE-026, “Application of ASTRUM Methodology for Best-Estimate Large-Break Loss-of-Coolant Accident Analysis for AP1000”, Revision 1, February 2009 (Westinghouse Proprietary) and APP-GW-GLE-026-NP (Non-Proprietary).

(Methodology for Specification 3.2.1 - Heat Flux Hot Channel Factor, and Specification 3.2.2 - Nuclear Enthalpy Rise Hot Channel Factor.)

5. WCAP-12472-P-A (Westinghouse Proprietary) and WCAP-12473-A (Non-Proprietary), “BEACON Core Monitoring and Operations Support System,” August 1994, Addendum 1, May 1996, and Addendum 2, March 2001; and WCAP-12472-P-A (Westinghouse Proprietary) and WCAP-12472-NP-A (Non-Proprietary) Addendum 4, September 2012.

5.6 Reporting Requirements

5.6.3 CORE OPERATING LIMITS REPORT (COLR) (continued)

(Methodology for Specification 3.2.5 - OPDMS - Monitored Parameters.)

6. APP-GW-GLR-137, Revision 1, “Bases of Digital Overpower and Overtemperature Delta-T (OP∆T/OT∆T) Reactor Trips,” Westinghouse Electric Company LLC.

   (Methodology for Specification 2.1.1 - Reactor Core Safety Limits.)

7a. WCAP-16045-P-A, “Qualification of the Two-Dimensional Transport Code PARAGON,” August 2004 (Westinghouse Proprietary) and WCAP-16045-NP-A, (Non-Proprietary).

   (Methodology for Specification 3.1.3 - Moderator Temperature Coefficient (MTC).)

7b. WCAP-16045-P-A, Addendum 1-A, “Qualification of the NEXUS Nuclear Data Methodology,” August 2007 (Westinghouse Proprietary) and WCAP-16045-NP-A, Addendum 1-A, (Non-Proprietary).

   (Methodology for Specification 3.1.3 - Moderator Temperature Coefficient (MTC).)

7c. WCAP-13749-P-A, “Safety Evaluation Supporting the Conditional Exemption of the Most Negative EOL Moderator Temperature Coefficient Measurement,” March 1997 (Westinghouse Proprietary).

   (Methodology for Specification 3.1.3 - Moderator Temperature Coefficient (MTC).)

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Passive Core Cooling Systems limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6 Reporting Requirements

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

a. RCS pressure and temperature limits for heat up, cooldown, low temperature operation, criticality, and hydrostatic testing as well as heatup and cooldown rates shall be established and documented in the PTLR for the following Specifications:

   3.4.3, “RCS Pressure and Temperature (P/T) Limits”
   3.4.14, “Low Temperature Overpressure Protection (LTOP)”

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:

   WCAP-14040-A, “Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves.” (Limits for LCO 3.4.3 and LCO 3.4.14).

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

5.6.5 Post Accident Monitoring Report

When a report is required by Condition B of LCO 3.3.17, “Post Accident Monitoring (PAM) Instrumentation,” a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.6 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.4, “Steam Generator (SG) Program.” The report shall include:

a. The scope of inspections performed on each SG,

b. Degradation mechanisms found,

c. Nondestructive examination techniques utilized for each degradation mechanism,

5.6 Reporting Requirements

5.6.6 Steam Generator Tube Inspection Report (continued)

d. Location, orientation (if linear), and measured sizes (if available) of service induced indications,

e. Number of tubes plugged during the inspection outage for each degradation mechanism,

f. The number and percentage of tubes plugged to date, and the effective plugging percentage in each steam generator, and

g. The results of condition monitoring, including the results of tube pulls and in-situ testing.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

5.7.1 <u>High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation</u>

a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.

b. Access to, and activities in, each such area shall be controlled by means of Radiation Work Permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

c. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

d. Each individual or group entering such an area shall possess:

   1. A radiation monitoring device that continuously displays radiation dose rates in the area, or

   2. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or

   3. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or

   4. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,

5.7 High Radiation Area

5.7.1 <u>High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation</u> (continued)

(i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or

(ii) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.

e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

5.7.2 <u>High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation</u>

a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door or gate that prevents unauthorized entry, and, in addition:

1. All such door and gate keys shall be maintained under the administrative control of the shift supervisor, radiation protection manager, or his or her designees, and

2. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.

b. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

5.7 High Radiation Area

5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation (continued)

c. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

d. Each individual group entering such an area shall possess:

1. A radiation monitoring device that continuously integrates the radiation rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or

2. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or

3. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,

(i) Be under surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or

(ii) Be under surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, or personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area.

4. In those cases where options (2) and (3), above, are impractical or determined to be inconsistent with the "As Low As is Reasonably Achievable" principle, a radiation monitoring device that continuously displays radiation dose rates in the area.

5.7 High Radiation Area

5.7.2 <u>High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation</u> (continued)

e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

f. Such individual areas that are within a larger area where no enclosure exists for the purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, nor continuously guarded, but shall be barricaded, conspicuously posted, and a clearly visible flashing light shall be activated at the area as a warning device.

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When NUREG is revised it will be superseded by next revision.

11. ABSTRACT (200 words or less)

NUREG-2194 contains the Standard Technical Specifications (STS) for Westinghouse AP1000 plants.

NUREG-2194, Rev. 0, was based on the generic technical specifications (TS) of Revision 19 of the generic design control document (DCD) of the AP1000 certified design rule (Appendix D to 10 CFR Part 52). The generic TS were derived from Revision 2 of the improved STS for Westinghouse plants, NUREG 1431, issued in 2001. NUREG-2194, Revision 0 included applicable NRC-approved generic changes to NUREG-1431 since Revision 2 (with exceptions), which are contained in NUREG-1431, Revision 5, issued in 2021. NUREG-2194 Revision 0 also included changes to the generic TS incorporated in the plant-specific TS issued with the combined license (COL No. NFP-91) (78 FR 64541) of the lead-plant for the AP1000 certified design, Vogtle Electric Generating Plant (VEGP) Unit 3, as revised on September 9, 2013, by COL Amendment 13 to the VEGP Unit 3 plant-specific TS. Details of changes to the generic TS contained in NUREG-2194 Revision 0 are described in generic TS travelers available at Agencywide Documents Access and Management System (ADAMS) Package Accession No. ML22240A001.

NUREG-2194, Rev. 1, Volume 1, Specifications and Volume 2, Bases, include additional applicable NRC-approved generic changes to NUREG-1431, and changes to maintain consistency with the VEGP Unit 3 plant-specific TS and Bases by incorporating plant-specific TS changes through COL Amendment 186, and plant-specific TS Bases changes through Bases Rev. 70. Users may access the STS NUREGs in the PDF format at (http://www.nrc.gov). Users may print or download copies from the NRC Web site.

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