NEXTera ENERGY
DUANE ARNOLD

June 20, 2019

NG-19-0055
L-2019-105
10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Duane Arnold Energy Center
Docket No. 50-331
Renewed Facility Operating License No. DPR-49

License Amendment Request (TSCR-183): Application to Revise Operating License and Technical Specifications for Permanently Defueled Condition

Pursuant to 10 CFR 50.90, NextEra Energy Duane Arnold, LLC (NEDA) is submitting a request for an amendment to the Technical Specifications (TS) for the Duane Arnold Energy Center (DAEC). The proposed changes will revise the license and associated Technical Specifications consistent with the permanent cessation of reactor operation and permanent defueling of the reactor.

By letter dated January 18, 2019 (Accession No. ML19023A196), NEDA provided formal notification to the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.82(a)(1)(i) and 10 CFR 50.4(b)(8) of the intention to permanently cease power operations at the DAEC in the fourth quarter of 2020.

After the certifications of permanent cessation of power operation and of permanent removal of fuel from the DAEC reactor vessel are docketed, in accordance with 10 CFR 50.82(a)(1)(i) and (ii) respectively, and pursuant to 10 CFR 50.82(a)(2), the 10 CFR 50 license will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessel. As a result, certain license conditions and technical specifications may be revised or removed to reflect the permanently defueled condition. In general, the changes propose the elimination of items applicable in operating conditions where fuel is placed in the reactor vessel. The revisions to the DAEC license and technical specifications are proposed in accordance with 10 CFR 50.51(b) and 10 CFR 50.36(c)(6).

The Enclosure to this letter provides NEDA's evaluation of the proposed change. Attachment 1 to the enclosure provides markups of the TS showing the proposed changes, and Attachment 2 provides the clean TS pages containing the proposed TS changes. The changes to the TS Bases are provided for information in Attachment 3 and will be incorporated in accordance with the TS Bases Control Program upon implementation of the approved amendment.

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NEDA requests approval of the proposed license amendment by August 1, 2020. NEDA requests that the approved amendment become effective following submittal of the certifications required by 10 CFR 50.82(a)(1)(i) and (ii).

In accordance with 10 CFR 50.91, a copy of this application with enclosures is being provided to the designated State of Iowa official.

As discussed in the Enclosure, the proposed change does not involve a significant hazards consideration pursuant to 10 CFR 50.92, and there are no significant environmental impacts associated with the change. The DAEC Onsite Review Group has reviewed the proposed license amendment.

The NRC is currently reviewing a supporting licensing action to change the organizational staffing and training requirements contained in DAEC TS Section 1.1, "Definitions" and Section 5.0, "Administration" that was submitted for approval by letter dated April 19, 2019 (ML19109A031).

This letter contains no new or revised regulatory commitments.

If you have any questions or require additional information, please contact Michael Davis, Licensing Manager, at 319-851-7032.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 20, 2019

Dean Curtland
Site Director
NextEra Energy Duane Arnold, LLC

Enclosure

cc: Regional Administrator, USNRC, Region III,
Project Manager, USNRC, Duane Arnold Energy Center
Resident Inspector, USNRC, Duane Arnold Energy Center
A. Leek (State of Iowa)

Enclosure

NEXTERA ENERGY DUANE ARNOLD, LLC
DUANE ARNOLD ENERGY CENTER

NG-19-0055

LICENSE AMENDMENT REQUEST (TSCR-183)

DESCRIPTION AND EVALUATION OF THE PROPOSED CHANGES

NEXTERA ENERGY DUANE ARNOLD, LLC
DUANE ARNOLD ENERGY CENTER

License Amendment Request (TSCR-183): Application to Revise Operating License and Technical Specifications for Permanently Defueled Condition

EVALUATION OF PROPOSED CHANGE

1.0 SUMMARY DESCRIPTION

NextEra Energy Duane Arnold, LLC (NEDA) requests an amendment to the Duane Arnold Energy Center (DAEC) Operating License (OL) and Technical Specifications (TS). The proposed changes will revise the OL and TS consistent with the permanent cessation of reactor operation and permanent defueling of the reactor. The revised OL and TS will be identified as the DAEC Post Defueled Technical Specifications (PDTS).

By letter dated January 18, 2019 (Reference 1), NEDA provided formal notification to the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.82(a)(1)(i) and 10 CFR 50.4(b)(8) of the intention to permanently cease power operations at the DAEC in the fourth quarter of 2020.

After the certifications of permanent cessation of power operation and of permanent removal of fuel from the DAEC reactor vessel are docketed, in accordance with 10 CFR 50.82(a)(1)(i) and (ii) respectively, and pursuant to 10 CFR 50.82(a)(2), the 10 CFR 50 license will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessel. As a result, certain license conditions and technical specifications may be revised or removed to reflect the permanently defueled condition. In general, the changes propose the elimination of items applicable in operating conditions where fuel is placed in the reactor vessel.

The proposed changes to the DAEC OL and TS are in accordance with 10 CFR 50.36(c)(1) through (c)(5). The proposed changes also include administrative changes to content format and revised page numbering. The TS Table of Contents is revised accordingly.

The current DAEC TS contain limiting conditions for operation (LCOs) that provide for appropriate functional capability of equipment required for safe operation of the facility, including safe storage and management of irradiated fuel. Since the safety function related to safe storage and management of irradiated fuel at an operating plant is similar to the corresponding function at a permanently defueled facility, the existing TS provide an appropriate level of control. However, the majority of the existing TS are only applicable with the reactor in an operational mode. LCOs and associated surveillance requirements (SRs) that will not apply in the permanently defueled condition are being proposed for deletion. The remaining portions of the TS are being proposed for revision and incorporation as the PDTS to provide a continuing acceptable level of safety that addresses the reduced scope of postulated design basis accidents with a permanently defueled plant.

In the development of the proposed PDTS changes, NEDA reviewed PDTS requirements from other plants that have permanently shut down, as listed in Section 4.2, Precedent.

The proposed changes would become effective following submittal of the certifications required by 10 CFR 50.82(a)(1)(i) and (ii).

Related Licensing Actions

By letter dated April 19, 2019 (Reference 2), NEDA submitted a License Amendment Request (LAR) proposing changes to the organization, staffing and training requirements contained in TS Section 1.1, "Definitions" and Section 5.0, "Administration" that complements and supports this request.

2.0 DETAILED DESCRIPTION

The proposed change is requested as a result of NEDA's formally-stated intention to permanently cease power operation at DAEC in the fourth quarter of 2020 and to transfer all fuel in the reactor to the Spent Fuel Pool (SFP) soon thereafter. The proposed amendment revises the DAEC OL and TS for a permanently defueled and shutdown condition. To support the proposed changes, NEDA has evaluated the design basis accidents (DBAs) that will be applicable in a permanently shutdown and defueled condition. NEDA has also evaluated the General Design Criteria (GDC) with respect to compliance in the permanently shutdown and defueled condition. The DBA and GDC evaluations provide the framework and basis for the proposed changes.

Design Basis Accident Analyses Applicable to Proposed Change

Chapter 15 of the DAEC Updated Final Safety Analysis Report (UFSAR) contains the DBAs and transient scenarios applicable to DAEC. The most severe postulated accident for nuclear power plants involves damage to the nuclear reactor core and the release of large quantities of fission products to the reactor coolant system (RCS). Many of the accident scenarios postulated in the UFSAR involve failures or malfunctions of systems that could affect the reactor core.

With the termination of reactor operations at DAEC and the permanent removal of fuel from the reactor as certified in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2), the majority of the DBA scenarios postulated in the UFSAR will no longer be possible. During decommissioning, the irradiated fuel will be stored in the Spent Fuel Pool (SFP) or the Independent Spent Fuel Storage Installation (ISFSI) until it is shipped offsite in accordance with the schedule to be provided in the Post Shutdown Decommissioning Activities Report (PSDAR) and the Spent Fuel Management Plan. With the reactor permanently shut down and defueled, many associated systems and instrumentation, as well as the turbine generator, are no longer in operation and have no function related to the safe storage and management of the spent nuclear fuel.

Chapter 15 of the UFSAR describes the safety analysis aspects of the DAEC that were evaluated to demonstrate that the plant could be operated safely and that radiological consequences from postulated accidents do not exceed regulatory requirements. The spectrum of UFSAR Chapter 15 events is divided into three classes in accordance with their anticipated frequency as follows:

Transients – Transients are subdivided into two categories: Anticipated Operational Occurrences (AOOs) and Abnormal Operating Transients (AOTs). AOOs are expected to occur at least once over the life of the plant and are the result of single equipment failures or single operator errors that can be reasonably expected during any mode of normal plant operation. AOTs are generally AOOs with an additional equipment failure or operator error, in addition to that which initiated the AOO. AOTs are not postulated to occur over the life of the plant.

Accidents – Accidents are defined as highly improbable, hypothesized events that affect one or more of the radioactive material barriers.

Special Events – Special Events are those where the plant has demonstrated its ability to respond to specific events that were postulated after the plant was initially designed and licensed. These events have unique requirements for demonstrating the plant's ability to mitigate the Special Event.

A list of Chapter 15 events and whether each applies to a permanently defueled condition is provided in Table 2.1 below. The UFSAR Chapter 15 DBA accident scenario that remains credible in the permanently defueled condition, with fuel stored in the SFP, is a fuel handling accident (FHA).

Table 2.1

UFSAR Section	Postulated Accident or Transient	Permanently Defueled Applicability
15.1	Transients	
15.1.1	Transients Resulting in a Reactor Vessel Water Temperature Decrease	
15.1.1.1	Feedwater Controller Failure – Maximum Demand	Not Applicable
15.1.1.2	Loss of Feedwater Heating	Not Applicable
15.1.1.3	Inadvertent HPCI Actuation	Not Applicable
15.1.2	Transients Resulting in a Nuclear System Pressure Increase	

15.1.2.1	Generator Load Rejection (Turbine Control Valve Fast Closure)	
15.1.2.1.1	Main Generator Load Rejection with Bypass Valve (LRWBP) – High Power	Not Applicable
15.1.2.1.2	Main Generator Load Rejection with Bypass Valve Failure (LRNBP) – High Power	Not Applicable
15.1.2.1.3	Generator Load Rejection from Low Power Without Bypass	Not Applicable
15.1.2.2	Turbine Trip (Turbine Stop Valve Closure)	
15.1.2.2.1	Main Turbine Trip with Bypass (TTWBP) – High Power	Not Applicable
15.1.2.2.2	Main Turbine Trip with Bypass Valve Failure (TTNBP) – High Power	Not Applicable
15.1.2.2.3	Main Turbine Trip with Bypass Valve Failure (TTNBP) – Low Power	Not Applicable
15.1.2.3	Main Steam Line Isolation Valve Closure	
15.1.2.3.1	Closure of all Main Steam Line Isolation Valves (MSIV) – High Power	Not Applicable
15.1.2.3.2	Closure of All Main Steam Line Isolation Valves with direct Scram Failure (MSIVF) – High Power	Not Applicable
15.1.2.3.3	Closure of One Main Steam Line Isolation Valve (1 MSIV) – High Power	Not Applicable
15.1.3	Transients Resulting in a Core Coolant Flow Decrease	
15.1.3.1	Recirculation Flow Control Failure – Decreasing Flow	Not Applicable
15.1.3.2	Trip of One Recirculation Pump	Not Applicable
15.1.3.3	Trip of Two Recirculation Pumps	Not Applicable
15.1.4	Transients Reactivity And Power Distribution Anomalies	
15.1.4.1	Rod Withdrawal Error at Power	Not Applicable
15.1.4.2	Rod Withdrawal Error at Startup	Not Applicable
15.1.4.3	Control Rod Removal Error During Refueling	Not Applicable
15.1.4.4.1	Fuel Assembly Insertion Error During Refueling – Inadvertent Criticality	Not Applicable
15.1.4.4.2	Fuel Loading Error – Mislocated Bundle	Not Applicable
15.1.4.4.3	Fuel Loading Error – Rotated Bundle	Not Applicable
15.1.5	Transients Resulting in an Increase in Core Flow	
15.1.5.1	Startup of an Idle Recirculation Pump	Not Applicable
15.1.5.2	Recirculation Flow Controller Failure – Increasing Flow (Fast)	Not Applicable

15.1.5.3	Recirculation Flow Controller Failure – Slow Flow Runout	Not Applicable
15.1.6	Transients Resulting in an Increase in Reactor Coolant Inventory	Not Applicable
15.1.7	Transients Resulting in a Reactor Vessel Coolant Inventory Decrease	
15.1.7.1	Pressure Regulator Failure – Open	Not Applicable
15.1.7.2	Inadvertent Opening of a Safety/Relief Valve	Not Applicable
15.1.7.3	Loss of Feedwater Flow	Not Applicable
15.1.7.4	Trip of One Feedwater Water Pump	Not Applicable
15.2	Accidents	
15.2.1	Loss-Of-Coolant Accidents	
15.2.1.1	Reactor Recirculation Pipe Breaks	Not Applicable
15.2.1.2	Core Spray Line Break	Not Applicable
15.2.1.3	Feedwater Line Break	Not Applicable
15.2.1.4	Main Steam Line Break – Inside Containment	Not Applicable
15.2.1.5	Main Steam Line Break – Outside Containment	Not Applicable
15.2.2	Instrument Line Breaks	
15.2.3	Recirculation Pump Seizure Accident	Not Applicable
15.2.4	Control Rod Drop Accident	Not Applicable
15.2.5	Fuel Handling Accident	Applicable
15.3	Special Events	
15.3.1	Anticipated Transients Without Scram (ATWS)	
15.3.1.1	ATWS – MSIVC	Not Applicable
15.3.1.2	ATWS – PRFO	Not Applicable
15.3.1.3	ATWS – LOOP	Not Applicable
15.3.1.4	ATWS – IORV	Not Applicable
15.3.2	Station Blackout (SBO)	
15.3.2.1	Station Blackout (SBO)	Not Applicable
15.3.3	Fire – Safe Shutdown Analysis	
15.3.3.1	Fire – No Spurious Operations	Not Applicable
15.3.3.2	Fire – Spurious Opening of One S/RV (20 Mins)	Not Applicable
15.3.3.3	Fire – Spurious Opening of One S/RV (10 Mins)	Not Applicable
15.3.3.4	Fire – With Leakage from a One Inch Line	Not Applicable
15.3.4	Thermal-Hydraulic Stability	
15.3.4.1	Thermal-Hydraulic Stability – Exclusion/Buffer Zone Determination	Not Applicable
15.3.4.2	Thermal-Hydraulic Stability – Safety Limit MCPR Protection	Not Applicable
15.3.5	Analysis of Reactor Internals Pressure Differentials (RIPD)	
15.3.5.1	RIPD – Normal Limits	Not Applicable

15.3.5.2	RIPD – Upset Limits	Not Applicable
15.3.5.3	RIPD – Emergency Limits	Not Applicable
15.3.5.4	RIPD – Faulted Limits	Not Applicable
15.3.5.5	RIPD – Flow-Induced Loads	Not Applicable
15.3.5.6	RIPD – Acoustic Loads	Not Applicable

Fuel Handling Accident Analysis for the Permanently Shut Down and Defueled Condition

Summary

On April 16, 2001, the NRC issued License Amendment 237 to the OL and TS of DAEC. The amendment implemented an alternative source term (AST) per 10 CFR 50.67 to perform the radiological consequence analysis of the design-basis FHA to support changes to the TS (Reference 3). The analysis of the FHA that supported these changes assumed the FHA occurred over the reactor core 60 hours after reactor shutdown from full power and did not take credit for secondary containment, secondary containment isolation or filtration by the Standby Gas Treatment (SBGT) System.

After the reactor has been completely defueled following permanent shut down, an FHA over the reactor core is no longer a credible accident. A fuel drop over the spent fuel pool is bounded by the analysis of a drop over the reactor core because the kinetic energy for the drop of thirty feet over the vessel produces a much greater number of damaged fuel pins on impact that the shorter drops that could occur over the fuel pool. DAEC UFSAR Chapter 15.2 states that the dose consequences of an FHA are less than the limits set forth in 10 CFR 50.67 and Regulatory Guide 1.183.

After the reactor has been completely defueled following permanent shutdown, all fuel in the SFP will have decayed such that an FHA in the SFP is bounded by the analysis of UFSAR Chapter 15.2.

Fuel Damage

The DAEC UFSAR describes the number of rods assumed to fail as a result of a FHA is 151 fuel rods. Since a fuel drop over the spent fuel pool is bounded by the analysis of a drop over the reactor core, this level of damage remains bounding in the permanently shut down and defueled condition.

Methods and Assumptions

The FHA analysis uses the Alternate Source Term (AST) Methodology outlined in NUREG-1465, Regulatory Guide 1.183 as detailed in Amendment 237. Since a fuel drop over the spent fuel pool is bounded by the analysis of a drop over the reactor core, this analysis remains bounding and the methods and assumptions listed in Amendment 237 remain unchanged.

3.0 TECHNICAL EVALUATION

The following tables identify each section that is proposed to be changed, the proposed changes and the basis for each change. Changes to the OL are listed first followed by changes to the TS. Proposed additions are shown using red underline and deletions are shown using red strikethrough.

Attachment 1 provides the marked-up version of the DAEC OL and TS. The proposed changes to the TS are considered a major rewrite; consequently, revision bars are not used. Additionally, TS sections that are not affected by this LAR are included in Attachments 1 and 2 so they can be annotated, as part of the major rewrite, with the Amendment number assigned to this LAR. Finally, the following administrative changes are not shown in the marked-up OL, TS, and TS Bases pages because they do not affect the technical content of the OL and TSs:

- Reformatting (margins, font, tables, line spacing, etc.) content to create a continuous electronic file;
- Renumbering of pages, where appropriate, to condense and reduce the number of pages; and
- Revisions to the TS Table of Contents.

Attachment 2 provides the re-typed Renewed Facility License and PDTS in their entirety. Since the changes to the TS are considered a major rewrite, revision bars are not used.

The markups of the TS Bases, provided in Attachment 3, are provided for information only. TS Bases sections that will be deleted in their entirety are not included in Attachment 3. Upon approval of this amendment, changes to the TS Bases will be incorporated in accordance with TS 5.5.10, "Technical Specifications Bases Control Program." Since the changes to the TS Bases are considered a major rewrite, revision bars are not used.

LICENSE	
License Title	
Current Title Renewed Facility Operating License	Proposed Title Renewed Facility ~~Operating~~ License
Basis	
The License title is modified to eliminate the reference to "Operating." After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2).	
License Item 1.B	
Current Construction of the Duane Arnold Energy Center (facility) has been substantially completed in conformity with Construction Permit No. DPPR-70; the application, as amendment; the provisions of the Act; and the rules and regulations of the Commission;	Proposed Deleted.
Basis	
License Item 1.B is proposed for deletion in its entirety. Decommissioning of DAEC is not dependent on the regulations that govern construction of the facility.	
License Item 1.C	
Current The facility will operate in conformity with the applications, as amended; the provisions of the Act; and the rules and regulations of the Commission;	Proposed The facility will ~~operate~~be maintained in conformity with the applications, as amended; the provisions of the Act; and the rules and regulations of the Commission;
Basis	
License Item 1.C is revised to align with the permanently defueled condition. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Thus, removal of the reference to operating provides accuracy in the 10 CFR Part 50 license description. Therefore, the changes are consistent with the requirements associated with a permanently shut down and defueled condition.	

License Item 1.D	
Current There is reasonable assurance: (i) that the activities authorized by this renewed operating license can be conducted without endangering the health and safety of the public; and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;	Proposed There is reasonable assurance: (i) that the activities authorized by this renewed ~~operating~~ license can be conducted without endangering the health and safety of the public; and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;
Basis	
License Item 1.D is modified to eliminate the reference to "operating." After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2).	

License Item 1.E	
Current NextEra Energy Duane Arnold, LLC is technically qualified and NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative and Corn Belt Power Cooperative are financially qualified to engage in the activities authorized by this renewed operating license in accordance with the rules and regulations of the Commission;	Proposed NextEra Energy Duane Arnold, LLC is technically qualified and NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative and Corn Belt Power Cooperative are financially qualified to engage in the activities authorized by this renewed ~~operating~~ license in accordance with the rules and regulations of the Commission;
Basis	
License Item 1.E is modified to eliminate the reference to "operating." After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2).	

License Item 1.G	
Current The issuance of this renewed operating license will not be inimical to the common defense and security or to the health and safety of the public;	Proposed The issuance of this renewed ~~operating~~ license will not be inimical to the common defense and security or to the health and safety of the public;
Basis	
License Item 1.G is modified to eliminate the reference to "operating." After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2).	

License Item 1.H	
Current After weighing the environmental, economic, technical, and other benefits of the facility against environmental costs and considering available alternatives, the issuance of renewed Facility Operating License No. DPR-49 is in accordance with 10 CFR Part 50, Appendix D, of the Commission's regulations and all applicable requirements of said Appendix D have been satisfied;	Proposed After weighing the environmental, economic, technical, and other benefits of the facility against environmental costs and considering available alternatives, the issuance of renewed Facility ~~Operating~~ License No. DPR-49 is in accordance with 10 CFR Part 50, Appendix D, of the Commission's regulations and all applicable requirements of said Appendix D have been satisfied;
Basis	
License Item 1.H is modified to eliminate the reference to "Operating." After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2).	

License Item 1.I	
Current The receipt, possession, and use of source, by-product and special nuclear material as authorized by this renewed operating license will be in accordance with the Commission's regulations in 10 CFR Part 30 and 70, including 10 CFR Section 30.33, 70.24 and 70.31.	Proposed Deleted.
Basis	
This condition is proposed for deletion in its entirety. The Commission's finding regarding possession and use of byproduct, source, and special nuclear material is not dependent on decommissioning of the facility. Additionally, possession and use of byproduct, source, and special nuclear material at DAEC during decommissioning activities is covered by License Condition 2.B, which will remain in effect. Therefore, License Condition 1.I is not needed.	

License Item 2	
Current Renewed Facility Operating License No. DPR-49 is hereby issued to NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative (CIPCO) and Corn Belt Power Cooperative (Corn Belt) to read as follows:	Proposed Renewed Facility ~~Operating~~ License No. DPR-49 is hereby issued to NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative (CIPCO) and Corn Belt Power Cooperative (Corn Belt) to read as follows:

Basis	
After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2).	
License Item 2.A	
Current (first sentence only) This renewed operating license applies to the Duane Arnold Energy Center, a boiling water reactor and associated equipment (the facility), owned by NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative and Corn Belt Cooperative and operated by NextEra Energy Duane Arnold, LLC. *Remaining sentences in Item 2.A are unchanged.*	Proposed (first sentence only) This renewed ~~operating~~ license applies to the Duane Arnold Energy Center, a permanently defueled boiling water reactor and associated equipment (the facility), owned by NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative and Corn Belt Cooperative and operated by NextEra Energy Duane Arnold, LLC. *Remaining sentences in Item 2.A are unchanged.*
Basis	
After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2).	
License Item 2.B(1)	
Current NextEra Energy Duane Arnold, LLC, pursuant to Section104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess, use and operate the facility; and CIPCO and Corn Belt to possess the facility at the designated location in Linn County, Iowa, in accordance with the procedures and limitations set forth in this license;	Proposed NextEra Energy Duane Arnold, LLC, pursuant to Section104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess~~,~~ and use ~~and operate~~ the facility as required for nuclear fuel storage; and CIPCO and Corn Belt to possess the facility at the designated location in Linn County, Iowa, in accordance with the procedures and limitations set forth in this license;
Basis	
The proposed language change associated with operating the facility in this license condition is removed. After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Thus, this item is revised to align with the permanently defueled condition.	

License Item 2.B(2)	
Current	Proposed
NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Updated Final Safety Analysis Report, as supplemented and amended as of June 1992 and as supplemented by letters dated March 26, 1993, and November 17, 2000.	NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Part 70, to ~~receive,~~ possess ~~and use~~ at any time special nuclear material that was used as reactor fuel, in accordance with the limitations for storage~~ and amounts required for reactor operation~~, as described in the Updated Final Safety Analysis Report, as supplemented and amended as of June 1992 and as supplemented by letters dated March 26, 1993, and November 17, 2000.
Basis	
The language in this license condition is proposed to be changed to reflect that special nuclear material for fuel used for reactor operations can no longer be received, only stored. After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the changes are consistent with the requirements associated with a permanently shutdown and defueled condition.	

License Item 2.B(3)	
Current	Proposed
NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;	NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use at any time any byproduct, source ~~and special nuclear material as sealed neutron sources for reactor startup,~~ or sealed sources for ~~reactor instrumentation and~~ radiation monitoring equipment calibration~~,~~ ~~and as fission detectors in amounts as required~~ and to possess any byproduct, source and special nuclear material as sealed neutron sources previously used for reactor startup and reactor instrumentation; and fission detectors;
Basis	
The requirements regarding receipt of sealed neutron sources for reactor startup and nuclear instrumentation is proposed for deletion from this license condition. This license	

condition is revised to reflect authorization only for continued possession of those sources previously used for reactor startups, produced as a byproduct, and those required for calibrations. After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the use of startup sources will no longer be needed. The changes are consistent with the requirements associated with a permanently shut down and defueled condition. The use of sources for radiations monitoring will continue to be required.	
License Item 2.B(5)	
Current NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.	Proposed NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear materials ~~as may be~~that were produced by the operation of the facility.
Basis	
This license condition will be revised to replace "as may be" with "that were." This license condition is proposed for revision to allow possession of byproduct and special nuclear materials that were produced by operation of the DAEC reactor. After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the changes are consistent with the requirements of associated with a permanently shut down and defueled condition.	
License Item 2.C	
Current This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I; Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject	Proposed This renewed ~~operating~~ license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I; Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject

to the additional conditions specified or incorporated below:	to the additional conditions specified or incorporated below:
Basis	
License Item 2.C is modified to eliminate the reference to "operating." After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2).	
License Item 2.C(1)	
Current Maximum Power Level NextEra Energy Duane Arnold, LLC is authorized to operate the Duane Arnold Energy Center at steady state reactor core power levels not in excess of 1912 megawatts (thermal).	Proposed Deleted.
Basis	
This License condition is deleted in its entirety to reflect the permanently defueled condition of the facility. After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor pursuant to 10 CFR 50.82(a)(2). The license need not limit reactor core power levels since the reactor will not be authorized to operate.	
License Item 2.C(2)	
Current Technical Specifications The Technical Specifications contained in Appendix A, as revised through Amendment No. 307, are hereby incorporated in the license. NextEra Energy Duane Arnold, LLC shall operate the facility in accordance with the Technical Specifications. (a) For Surveillance Requirements (SRs) whose acceptance criteria are modified, either directly or indirectly, by the increase in authorized maximum power level in 2.C.(1) above, in accordance with Amendment No. 243 to Facility	Proposed Technical Specifications The Technical Specifications contained in Appendix A, as revised through Amendment No. ~~307~~, are hereby incorporated in the license. NextEra Energy Duane Arnold, LLC shall ~~operate~~maintain the facility in accordance with the Permanently Defueled Technical Specifications. ~~(a) For Surveillance Requirements (SRs) whose acceptance criteria are modified, either directly or indirectly, by the increase in authorized maximum power level in 2.C.(1) above, in accordance with~~

Operating License DPR-49, those SRs are not required to be performed until their next scheduled performance, which is due at the end of the first surveillance interval that begins on the date the Surveillance was last performed prior to implementation of Amendment No. 243. (b) Deleted.	~~Amendment No. 243 to Facility Operating License DPR-49, those SRs are not required to be performed until their next scheduled performance, which is due at the end of the first surveillance interval that begins on the date the Surveillance was last performed prior to implementation of Amendment No. 243.~~ ~~(b) Deleted.~~
Basis	
This License condition is revised to reflect the permanently defueled condition of the facility. After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). The License condition is revised to remove the reference to reactor operation as well as the reference to the now deleted condition 2.C.(1).	
License Item 2.C(4)	
Current The licensee is authorized to operate the Duane Arnold Energy Center following installation of modified safe-ends on the eight primary recirculation system inlet lines which are described in the licensee letter dated July 31, 1978, and supplemented by letter dated December 8, 1978.	Proposed Deleted.
Basis	
After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor pursuant to 10 CFR 50.82(a)(2). Thus, the requirement for installation of equipment to support operation is not necessary.	
License Item 2.C(11)	
Current The information in the UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), shall be	Proposed Deleted.

incorporated into the UFSAR no later than the next scheduled update required by 10 CFR 50.71(e) following the issuance of this renewed operating license. Until this update is complete, the licensee may not make changes to the information in the supplement. Following incorporation into the UFSAR, the need for prior Commission approval of any changes will be governed by 10 CFR 50.59.	
Basis	
After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor pursuant to 10 CFR 50.82(a)(2). Thus, the requirement for the addition of UFSAR information to support operation is not necessary.	
License Item 2.C(12)	
<u>Current</u> The UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), and as supplemented by Appendix A of NUREG-1955, "Safety Evaluation Report Related to the License Renewal of Duane Arnold Energy Center," dated November 2010, as supplemented by letter from the licensee to the NRC dated November 23, 2010, describes certain programs to be implemented and activities to be completed before the period of extended operation. a. NextEra Energy Duane Arnold, LLC shall implement those new programs and enhancements to existing programs no later than February 21, 2014. b. NextEra Energy Duane Arnold, LLC shall complete those activities no later than February 21, 2014. The licensee shall notify the NRC in writing within 30 days after having	<u>Proposed</u> Deleted.

accomplished item (a) above and include the status of those activities that have been or remain to be completed in item (b) above.	
Basis	
This License condition imposed program requirements necessary for the DAEC to continue operation beyond February 21, 2014. After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor pursuant to 10 CFR 50.82(a)(2). Thus, the program requirements to support extended operation are not necessary.	

License Item 2.C(13)	
Current The licensee shall implement the most recent staff-approved version of the Boiling Water Reactor Vessels and Internals Project (BWRVIP) Integrated Surveillance Program (ISP) as the method to demonstrate compliance with the requirements of 10 CFR Part 50, Appendix H. Any changes to the BWRVIP ISP capsule withdrawal schedule must be submitted for staff review and approval. Any changes to the BWRVIP ISP capsule withdrawal schedule which affects the time of withdrawal of any surveillance capsules must be incorporated into the licensing basis. If any surveillance capsules are removed without the intent to test them, these capsules must be stored in a manner which maintains them in a condition which would support re-insertion into the reactor pressure vessel if necessary.	Proposed Deleted.
Basis	
After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Thus, once the DAEC vessel is permanently defueled and the remaining BWRVIP ISP capsule is removed, NextEra Energy Duane Arnold, LLC will terminate its participation in the BWRVIP ISP program.	

License Item 2.D	
Current This license is effective as of the date of issuance and shall expire at midnight February 21, 2034.	Proposed This license is effective as of the date of issuance and is effective until the Commission notifies the licensee in writing that the license is terminated ~~shall expire at midnight February 21, 2034~~.
Basis	
After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor pursuant to 10 CFR 50.82(a)(2). Thus, February 21, 2034 no longer has significance and does not govern termination of the license.	
Appendix B Additional Conditions	
Current Amendment 260 (1) At the time of the closing of the transfer of the license from Interstate Power and Light Company (IPL) to FPLE Duane Arnold*, IPL shall transfer to FPLE Duane Arnold* IPL's decommissioning funds accumulated as of such time, with a aggregate minimum value of at least $186 million, and FPLE Duane Arnold* shall deposit such funds in an external decommissioning trust fund established by FPLE Duane Arnold* for DAEC. NextEra Energy Duane Arnold shall take all necessary steps to ensure that this external trust fund is maintained in accordance with the requirements of the order approving the license transfer, NRC regulations, and consistent with the safety evaluation supporting the order. The trust agreement shall be in a form acceptable to the NRC. * On April 16, 2009, the name "FPL Energy Duane Arnold, LLC was changed to "NextEra Energy Duane Arnold, LLC."	Proposed Amendment 260 (1) ~~At the time of the closing of the transfer of the license from Interstate Power and Light Company (IPL) to FPLE Duane Arnold*, IPL shall transfer to FPLE Duane Arnold* IPL's decommissioning funds accumulated as of such time, with a aggregate minimum value of at least $186 million, and FPLE Duane Arnold* shall deposit such funds in an external decommissioning trust fund established by FPLE Duane Arnold* for DAEC.~~ NextEra Energy Duane Arnold shall take all necessary steps to ensure that ~~this~~ the external trust fund established at the time of the closing of transfer of the license from Interstate Power and Light (IPL) to FPLE Duane Arnold is maintained in accordance with the requirements of the December 23, 2005 order approving the license transfer, NRC regulations, and consistent with the safety evaluation supporting the order. The trust agreement shall be in a form acceptable to the NRC.

<table>
<tr><td></td><td>~~* On April 16, 2009, the name "FPL Energy Duane Arnold, LLC was changed to "NextEra Energy Duane Arnold, LLC."~~</td></tr>
<tr><td colspan="2">Basis</td></tr>
<tr><td colspan="2">The revisions to the condition pertaining to decommissioning trust funding are to clarify current requirements and remove statements that are no longer relevant.</td></tr>
<tr><td><u>Current</u>
Amendment 260 (3)
NextEra Energy Duane Arnold shall take no action to cause FPL Group Capital, or its successors and assigns, to void, cancel, or modify its $50 million contingency commitment to NextEra Energy Duane Arnold, as represented in the license transfer application, or cause it to fail or perform or impair its performance under the commitment, or remove or interfere with NextEra Energy Duane Arnold's ability to draw upon the commitment, without the prior written consent from the NRC. An executed copy of the Support Agreement shall be submitted to the NRC no later than 30 days after completion of the license transfer. Also, NextEra Energy Duane Arnold shall inform the NRC in writing any time that it draws upon the $50 million commitment.</td><td><u>Proposed</u>
DELETED</td></tr>
<tr><td colspan="2">Basis</td></tr>
<tr><td colspan="2">As stated in the NRC's Safety Evaluation for the DAEC license transfer, dated December 23, 2005 (ML053420246), the purpose of the support agreement is to ensure the licensee has sufficient funds to cover operating costs. Moreover, the Support Agreement, which was provided as Enclosure 9 to the August 1, 2005 License Transfer Application (ML052160266), states that the agreement terminates when the plant ceases commercial operations. After certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor pursuant to 10 CFR 50.82(a)(2). Thus, DAEC will cease commercial operation and this License Condition will no longer apply.</td></tr>
<tr><td colspan="2"></td></tr>
</table>

TECHNICAL SPECIFICATIONS	
TS SECTION 1.1, DEFINITIONS	
TS 1.1, "Definitions," provides defined terms that are applicable throughout the TS and TS Bases. A number of the Definitions are proposed to be deleted, because they have no relevance to and no longer apply to the permanently defueled facility status.	
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification, and the reactor has been permanently defueled.
CORE ALTERATION	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. This term is no longer applicable since fuel will be permanently removed from the reactor.
CORE OPERATING LIMITS REPORT (COLR)	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. This term is no longer applicable when power operation is not permitted.
DRAIN TIME	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. This term is no longer applicable since fuel will be permanently removed from the reactor.
END OF CYCLE RECIRCULATION PUMP TRIP (EOC RPT) SYSTEM RESPONSE TIME	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. This term is no longer applicable when power operation is not permitted.
INSERVICE TESTING	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. Inservice testing in accordance with 10 CFR 50.55a

	will no longer be required once the reactor is permanently shut down and defueled.
LEAKAGE	This definition is not proposed for inclusion in the PDTS because none of the structures, systems, or components (SSCs) from or into which leakage is monitored are credited in the analysis of a Fuel Handling Accident, which is the only remaining credible accident.
MINIMUM CRITICAL POWER RATIO (MCPR)	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. This definition only applies to an operating core.
MODE	This definition is not proposed for inclusion in the PDTS because operating Modes are not used in any PDTS specification. Modes are defined for operating or refueling conditions and do not apply to a facility in the permanently defueled condition.
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. This definition only applies to an operating reactor.
RATED THERMAL POWER (RTP)	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. This definition only applies to an operating reactor.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification.
SHUTDOWN MARGIN (SDM)	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. This definition only

	applies to an operating reactor.
THERMAL POWER	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. This definition only applies to an operating reactor.
TURBINE BYPASS SYSTEM RESPONSE TIME	This definition is not proposed for inclusion in the PDTS because the term is not used in any PDTS specification. Once the reactor is permanently shut down and defueled, the turbine will not be operating. Therefore, this definition does not apply.
Table 1.1-1 MODES	This table describes the conditional requirements for all reactor operating Modes at DAEC. This table is not proposed for inclusion in the PDTS because reactor operating Modes will no longer be applicable to the permanently shut down and defueled reactor.

TS Section 1.3 COMPLETION TIMES

TS 1.3 establishes the Completion Time convention and provides guidance for its use, including several illustrative examples.

Current	Proposed
PURPOSE The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.	PURPOSE The purpose of this section is to establish the Completion Time convention and to provide guidance for its use. The following discussion and examples contain references to reactor thermal power and reactor MODES. Specifically, Required Actions of several examples direct a change in reactor thermal power or entry into various reactor MODES. Although these Required Actions do not apply to a permanently shut down and defueled

<table>
<tr><td></td><td>facility, the discussion and examples are retained because they continue to have illustrative value. For purposes of these examples, reactor MODES are defined below.
MODE 1 – Power Operation
MODE 2 – Startup
MODE 3 – Hot Shutdown, reactor coolant > 212°F
MODE 4 – Cold Shutdown, reactor coolant ≤ 212°F
MODE 5 – Refueling</td></tr>
<tr><td colspan="2">Basis</td></tr>
<tr><td colspan="2">After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). DAEC will be authorized only to possess special nuclear material. Therefore, references to reactor thermal power and operating MODES are no longer applicable. TS 1.3, Completion Times, is revised by adding a paragraph stating that, although operating MODES and reactor thermal power no longer apply to the permanently shut down and defueled DAEC, the discussion and examples in TS 1.3 are retained for illustrative purposes. For purposes of the illustrative examples, a brief definition of reactor MODES is given.

Example 1.3-2 contains discussion of LCO 3.0.3. This discussion will be removed because LCO 3.0.3 is proposed for deletion, as discussed later in this document.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2">TS Section 1.4 Frequency</td></tr>
<tr><td colspan="2">TS Section 1.4 defines the proper use and application of Frequency requirements, including several illustrative examples.</td></tr>
<tr><td>Current
PURPOSE
The purpose of this section is to define the proper use and application of Frequency requirements.</td><td>Proposed
PURPOSE
The purpose of this section is to define the proper use and application of Frequency requirements.

The following discussion and examples contain references to reactor thermal power and reactor MODES. Specifically, Required Actions of several examples direct a change in reactor thermal power or entry into various reactor MODES. Although these</td></tr>
</table>

	<u>Required Actions do not apply to a permanently shut down and defueled facility, the discussion and examples are retained because they continue to have illustrative value. For purposes of these examples, reactor MODES are defined below.</u> <u>MODE 1 – Power Operation</u> <u>MODE 2 – Startup</u> <u>MODE 3 – Hot Shutdown, reactor coolant > 212°F</u> <u>MODE 4 – Cold Shutdown, reactor coolant ≤ 212°F</u> <u>MODE 5 – Refueling</u>

Basis
After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). DAEC will be authorized only to possess special nuclear material. Therefore, references to reactor thermal power and operating MODES are no longer applicable. TS 1.4, Frequency, is revised by adding a paragraph stating that, although operating MODES and reactor thermal power no longer apply to the permanently shut down and defueled DAEC, the discussion and examples in TS 1.4 are retained for illustrative purposes. For purposes of the illustrative examples, a brief definition of reactor MODES is given.
TS Section 2.0 SAFETY LIMITS (SLs)
The fuel cladding, reactor pressure vessel and primary containment are the principle barriers to prevent the release of radioactive materials to the environs during operations. TS 2.1 establishes Safety Limits to protect the integrity of these barriers during normal plant operations and anticipated transients. Pursuant to 10 CFR 50.36(c)(1), safety limits are limiting parameters necessary to protect the physical barriers that guard against uncontrolled release of radioactivity from a nuclear reactor. TS Section 2.0 is proposed for deletion in its entirety, since the safety limits do not apply to a reactor that is in a permanently shut down and defueled condition. These specifications do not apply to the safe storage and handling of spent fuel in the SFP. Because the TS will not be renumbered, a markup is provided to identify this section as deleted.

Current TS	Basis for Change
TS 2.1 Safety Limits	TS 2.1 will be deleted. The fuel cladding, reactor pressure vessel and primary containment are the principle barriers to prevent the release of radioactive materials to the environs during operations. TS 2.1 establishes Safety Limits to protect the integrity of these barriers during normal plant operations and anticipated transients. Pursuant to 10 CFR 50.82(a)(2), the facility license for DAEC will no longer authorize operation of the reactor or placement or retention of fuel in the reactor. Since the Safety Limits apply to an operating reactor, they have no function in the permanently defueled condition. Therefore, the safety limits are proposed for deletion.
TS 2.2 Safety Limit Violation	TS 2.2 will be deleted. TS 2.2 defines the action to take in the event of a violation of a SL as defined in TS 2.1. Pursuant to 10 CFR 50.82(a)(2), the facility license for DAEC will no longer authorize operation of the reactor or placement or retention of fuel in the reactor. Since the Safety Limits apply to an operating reactor, they have no function in the permanently defueled condition. Likewise, action to take in the event of a Safety Limit non-compliance, as described in TS 2.2, is proposed for deletion.

TS 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY
TS 3.0, "Limiting Condition for Operation (LCO) Applicability," establishes the general requirements applicable to all Specifications and applies at all times, unless otherwise stated. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Consequently, some LCOs are no longer applicable and some must be revised to reflect the permanently defueled condition.

Current TS LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, LCO 3.0.8, and LCO 3.0.9.	Proposed TS LCO 3.0.1 LCOs shall be met during the ~~MODES or other~~ specified conditions in the Applicability, except as provided in LCO 3.0.2~~, LCO 3.0.7, LCO 3.0.8, and LCO 3.0.9~~.
Basis	
The DAEC will no longer be authorized to operate the reactor, therefore, MODES do not apply. Deletion of LCOs 3.0.7, 3.0.8 and 3.0.9 is discussed later.	
Current TS 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.	Proposed TS 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.
Basis	
Deletion of LCOs 3.0.5 is discussed later.	
Current TS 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 2 within 9 hours; b. MODE 3 within 13 hours; and c. MODE 4 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,	Proposed TS LCO 3.0.3 - Deleted.

completion of the actions required by LCO 3.0.3 is not required. LCO 3.0.3 is only applicable in MODES 1, 2, and 3.	

Basis
LCO 3.0.3 is applicable in MODES 1, 2, and 3 only. Once the DAEC is permanently shut down and defueled, reactor operating MODES will not apply. Therefore, this LCO will no longer be applicable.

Current TS LCO 3.0.4	Proposed TS LCO 3.0.4
When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:	When an LCO is not met, entry into a ~~MODE or other~~ specified condition in the Applicability shall only be made:
a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time;	a. When the associated ACTIONS to be entered permit continued operation in the ~~MODE or other~~ specified condition in the Applicability for an unlimited period of time;
b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or	b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the ~~MODE or other~~ specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or
c. When an allowance is stated in the individual value, parameter, or other Specification.	c. When an allowance is stated in the individual value, parameter, or other Specification.
This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that	~~This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that~~

are part of a shutdown of the unit.	~~are part of a shutdown of the unit.~~
Basis	
This LCO is revised to remove references to MODES since the DAEC reactor will no longer be operating. The last paragraph is removed as it is related to MODE changes and plant shutdown, neither of which apply to the DAEC in the permanently defueled condition.	
Current TS 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.	Proposed TS LCO 3.0.5 - Deleted.
Basis	
This LCO allows flexibility in declaring equipment operable to allow testing to demonstrate operability. It is not anticipated that this flexibility will be needed once the DAEC is permanently shut down and defueled.	
Current TS LCO 3.0.7 Special Operations LCOs in Section 3.10 allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Special Operations LCOs is optional. When a Special Operations LCO is desired to be met but is not met, the ACTIONS of the Special Operations LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.	Proposed TS LCO 3.0.7 - Deleted.

<table>
<tr><th colspan="2">Basis</th></tr>
<tr><td colspan="2">This LCO allows flexibility to permit performance of special tests and operations. It is not anticipated that this flexibility will be needed once the DAEC is permanently shut down and defueled.</td></tr>
<tr><td>Current TS LCO 3.0.8

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

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

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

At the end of the specified period the required snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.</td><td>Proposed TS LCO 3.0.8 - Deleted.</td></tr>
<tr><th colspan="2">Basis</th></tr>
<tr><td colspan="2">This LCO applies only to snubbers installed at DAEC. Snubbers are designed to prevent unrestrained pipe motion under dynamic loads as might occur during a seismic event or severe transient, while allowing normal thermal motion during startup and shutdown. This function is not necessary in a permanently shut down and defueled facility. Therefore, this LCO will be deleted.</td></tr>
</table>

Current TS LCO 3.0.9	Proposed TS LCO 3.0.9
When one or more required barriers are unable to perform their related support function(s), any supported system LCO(s) are not required to be declared not met solely for this reason for up to 30 days provided that at least one train or subsystem of the supported system is OPERABLE and supported by barriers capable of providing their related support function(s), and risk is assessed and managed. This specification may be concurrently applied to more than one train or subsystem of a multiple train or subsystem supported system provided at least one train or subsystem of the supported system is OPERABLE and the barriers supporting each of these trains or subsystems provide their related support function(s) for different categories of initiating events. For the purposes of this specification, the High Pressure Coolant Injection system, the Reactor Core Isolation Cooling system, and the Automatic Depressurization System are considered independent subsystems of a single system. If the required OPERABLE train or subsystem becomes inoperable while this specification is in use, it must be restored to OPERABLE status within 24 hours or the provisions of this specification cannot be applied to the trains or subsystems supported by the barriers that cannot perform their related support function(s). At the end of the specified period, the required barriers must be able to perform their related support function(s) or the supported system LCO (s) shall be declared not met.	When one or more required barriers are unable to perform their related support function(s), any supported system LCO(s) are not required to be declared not met solely for this reason for up to 30 days provided that at least one train or subsystem of the supported system is OPERABLE and supported by barriers capable of providing their related support function(s), and risk is assessed and managed. This specification may be concurrently applied to more than one train or subsystem of a multiple train or subsystem supported system provided at least one train or subsystem of the supported system is OPERABLE and the barriers supporting each of these trains or subsystems provide their related support function(s) for different categories of initiating events. ~~For the purposes of this specification, the High Pressure Coolant Injection system, the Reactor Core Isolation Cooling system, and the Automatic Depressurization System are considered independent subsystems of a single system.~~ If the required OPERABLE train or subsystem becomes inoperable while this specification is in use, it must be restored to OPERABLE status within 24 hours or the provisions of this specification cannot be applied to the trains or subsystems supported by the barriers that cannot perform their related support function(s). At the end of the specified period, the required barriers must be able to perform their related support function(s) or the supported system LCO (s) shall be declared not met.

Basis	
This LCO provides guidance that will remain applicable after the DAEC is permanently defueled. The second paragraph, however, is specific to systems that will no longer be operational in the permanently defueled condition. Therefore, this paragraph will be deleted.	
Current TS SR 3.0.1 SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.	Proposed TS SR 3.0.1 SRs shall be met during the ~~MODES or other~~ specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.
Basis	
This LCO is revised to remove references to MODES since the DAEC reactor will no longer be operating.	
Current TS SR 3.0.4 Entry into a MODE or other specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with LCO 3.0.4. This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.	Proposed TS SR 3.0.4 Entry into a ~~MODE or other~~ specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a ~~MODE or other~~ specified condition in the Applicability shall only be made in accordance with LCO 3.0.4. This provision shall not prevent entry into ~~MODES or other~~ specified conditions in the Applicability that are required to comply with ACTIONS~~ or that are part of a shutdown of the unit~~.

Basis
This SR is revised to remove references to MODES and plant shutdown, neither of which apply to the DAEC in the permanently defueled condition.

TS SECTION 3.1 REACTIVITY CONTROL SYSTEMS	
Current	Proposed
TS 3.1.1 – SHUTDOWN MARGIN (SDM)	TS 3.1.1 – Deleted
TS 3.1.2 – Reactivity Anomalies	TS 3.1.2 – Deleted
TS 3.1.3 – Control Rod OPERABILITY	TS 3.1.3 – Deleted
TS 3.1.4 – Control Rod Scram Times	TS 3.1.4 – Deleted
TS 3.1.5 – Control Rod Scram Accumulators	TS 3.1.5 – Deleted
TS 3.1.6 – Rod Pattern Control	TS 3.1.6 – Deleted
TS 3.1.7 – Standby Liquid Control (SLC) System	TS 3.1.7 – Deleted
TS 3.1.8 – Scram discharge Volume (SDV) Vent and Drain Valves	TS 3.1.8 – Deleted

Basis

TS Section 3.1, "Reactivity Control Systems," contains LCOs that provide for appropriate control of process variables, design features, or operating restrictions required to protect the integrity of fission product barriers. The TS listed below do not apply once the reactor is permanently shut down and defueled; therefore, their corresponding LCOs (and associated SRs) are proposed to be deleted.

TS 3.1.1, "Shutdown Margin," the requirements in this TS Section are specified to ensure:

a. The reactor can be made subcritical from all operating conditions and transients and Design Basis Accidents;

b. The reactivity transients associated with postulated accident conditions are controllable within acceptable limits; and

c. The reactor will be maintained sufficiently subcritical to preclude inadvertent criticality in the shutdown condition.

TS 3.1.1 is applicable in MODES 1, 2, 3, 4, and 5.

TS 3.1.2, "Reactivity Anomalies," ensures reactivity shall be controllable such that subcriticality is maintained under cold conditions and acceptable fuel design limits are not exceeded during normal operation and abnormal operational transients. Therefore, reactivity anomaly is used as a measure of the predicted versus measured (i.e., monitored) core reactivity during power operation. The continual confirmation of core reactivity is necessary to ensure that the Design Basis Accident (DBA) and transient safety analyses remain valid. TS 3.1.2 is applicable in MODES 1 and 2.

TS 3.1.3, "Control Rod OPERABILITY," ensures that the performance of the control rods in the event of a Design Basis Accident (DBA) or transient meets the assumptions used in the safety analyses as described in the UFSAR. TS 3.1.3 is applicable in MODES 1 and 2.

TS 3.1.4, "Control Rod Scram Times," ensures the Control Rod Drive (CRD) System controls reactivity changes during Abnormal Operational Transients and Design Basis Accidents (DBAs) to ensure that specified acceptable fuel design limits are not exceeded. TS 3.1.4 is applicable in MODES 1 and 2.

TS 3.1.5, "Control Rod Scram Accumulators," requires that control rod scram accumulators are provided to ensure that the control rods scram under varying reactor conditions. The control rod scram accumulators store sufficient energy to fully insert a control rod at any reactor vessel pressure. TS 3.1.5 is applicable in MODES 1 and 2.

TS 3.1.6, "Rod Pattern Control," assures that the control rod patterns are consistent with the assumptions of the Control Rod Drop Accident (CRDA) analyses in the UFSAR when the reactor is in MODES 1 and 2 with Thermal Power ≤ 10% Reactor Thermal Power.

TS 3.1.7, "Standby Liquid Control (SLC) System," provides the capability of bringing the reactor, at any time in a fuel cycle, from full power and minimum control rod inventory (which is at the peak of the xenon transient) to a subcritical condition with the reactor in the most reactive, xenon free state without taking credit for control rod movement. In addition, the SLC System is relied upon to satisfy the requirements of 10 CFR 50.62 (Ref. 1) on Anticipated Transient Without Scram (ATWS). TS 3.1.7 is applicable in MODES 1 and 2.

TS 3.1.8, "Scram Discharge Volume (SDV) Vent and Drain Valves," this system functions to 1) limit the amount of reactor coolant discharged during a reactor scram; and 2) ensure there is sufficient volume to accept the reactor coolant discharged during a scram. TS 3.1.8 is applicable in MODES 1 and 2.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 5. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.1, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

TS SECTION 3.2 POWER DISTRIBUTION LIMITS	
<u>Current</u> TS 3.2.1 – AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR) TS 3.2.2 – MINIMUM CRITICAL POWER RATIO (MCPR)	<u>Proposed</u> TS 3.2.1 – Deleted TS 3.2.2 – Deleted

Basis

TS Section 3.2, "Power Distribution Limits," contains LCOs that provide for appropriate control of process variables, design features, or operating restrictions required to protect the integrity of fission product barriers. The TS listed below do not apply once the reactor is permanently shut down and defueled; therefore, their corresponding LCOs (and associated SRs) are proposed to be deleted.

TS 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," places limits on the APLHGR to ensure that the fuel design limits are not exceeded during Abnormal Operational Transients; and, also to assure that the Peak Cladding Temperature (PCT) during the postulated design basis Loss Of Coolant Accident (LOCA) does not exceed the limits specified in 10 CFR 50.46. TS 3.2.1 is applicable when reactor thermal power is ≥ 21.7%.

TS 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," places limits on the MCPR to ensure that no fuel damage results during Abnormal Operational Transients. TS 3.2.2 is applicable when reactor thermal power is ≥ 21.7%.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when reactor thermal power is ≥ 21.7%. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.2, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

<table>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2" align="center">TS SECTION 3.3 INSTRUMENTATION</td></tr>
<tr><td><u>Current</u>
TS 3.3.1.1 – Reactor Protection System (RPS) Instrumentation
TS 3.3.1.2 – Source Range Monitor (SRM) Instrumentation</td><td><u>Proposed</u>
TS 3.3.1.1 – Deleted

TS 3.3.1.2 – Deleted</td></tr>
<tr><td colspan="2" align="center">Basis</td></tr>
<tr><td colspan="2">The RPS initiates a reactor scram when one or more monitored parameters exceed their specified limits, to preserve the integrity of the fuel cladding and the Reactor Coolant Pressure Boundary (RCPB), minimize the energy that must be absorbed following a Loss of Coolant Accident (LOCA), and prevent inadvertent criticality. This can be accomplished either automatically or manually.

TS 3.3.1.1, “Reactor Protection System (RPS) Instrumentation,” ensures safe operation of the reactor by specifying Limiting Safety System Settings (LSSS) in terms of parameters directly monitored by the RPS, as well as LCOs on other reactor system parameters and equipment performance. TS 3.3.1.1 is applicable in MODES 1, 2, and 5 as specified in TS Table 3.3.1.1-1.

The SRMs provide the operator with information relative to the neutron flux level at very low flux levels in the reactor core. As such, TS 3.3.1.2, “Source Range Monitor (SRM) Instrumentation,” is used by the operator to monitor the approach to criticality and determine when criticality is achieved. TS 3.3.1.2 is applicable in MODES 2, 3, 4, and 5 as specified in TS Table 3.3.1.2-1.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 5. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.3.1, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.</td></tr>
<tr><td><u>Current</u>
TS 3.3.2.1 – Control Rod Block Instrumentation</td><td><u>Proposed</u>
TS 3.3.2.1 – Deleted</td></tr>
</table>

Basis
Control rods provide the primary means for control of reactivity changes. TS 3.3.2.1, "Control Rod Block Instrumentation" ensures that specified fuel design limits are not exceeded for postulated transients and accidents. TS 3.3.2.1 is applicable at various reactor thermal power levels and with the reactor mode switch in the shutdown position as specified in TS Table 3.3.2.1-1. The above TS is related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 5. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.3.2, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

<u>Current</u>	<u>Proposed</u>
TS 3.3.3.1 – Post Accident Monitoring (PAM) Instrumentation	TS 3.3.3.1 – Deleted
TS 3.3.3.2 – Remote Shutdown System	TS 3.3.3.2 – Deleted

Basis
The primary purpose of the PAM instrumentation is to display plant variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to determine that the actions automatically initiated by the Engineered Safety Features (ESF) equipment have successfully accomplished their safety functions for Design Basis Events. TS 3.3.3.1, "Post Accident Monitoring (PAM) Instrumentation," ensures that there is sufficient information available on selected plant parameters to monitor and assess plant status and behavior following an accident. TS 3.3.3.1 is applicable in MODES 1 and 2. TS 3.3.3.2, "Remote Shutdown System," this system provides the control room operator with sufficient instrumentation and controls to place and maintain the plant in a safe shutdown condition from a location other than the control room. This capability is necessary to protect against the possibility of the control room becoming inaccessible. TS 3.3.3.2 is applicable in MODES 1 and 2.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 and 2. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.3.3, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

Current	Proposed
TS 3.3.4.1 – End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation	TS 3.3.4.1 – Deleted
TS 3.3.4.2 – Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation	TS 3.3.4.2 – Deleted

Basis

TS 3.3.4.1, "End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation," initiates a Recirculation Pump trip to reduce the peak reactor pressure and power resulting from turbine trip or generator load rejection transients to provide additional margin to core thermal MCPR Safety Limits (SLs). TS 3.3.4.1 is applicable when reactor thermal power is ≥ 26%.

The Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) System initiates an RPT, adding negative reactivity, following events in which a scram fails to occur, to lessen the effects of an ATWS event. Tripping the recirculation pumps adds negative reactivity from the increase in steam voiding in the core area as core flow decreases. When the Reactor Vessel Water Level — Low Low or the Reactor Steam Dome Pressure — High setpoint is reached, the recirculation pump motor breakers trip. TS 3.3.4.2, "Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation" ensures initiation of an RPT. TS 3.3.4.2 is applicable in MODE 1.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODE 1. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.3.4, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

Current	Proposed
TS 3.3.5.1 – Emergency Core Cooling System (ECCS) Instrumentation	TS 3.3.5.1 – Deleted
TS 3.3.5.2 – Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation	TS 3.3.5.2 – Deleted
TS 3.3.5.3 – Reactor Core Isolation Cooling (RCIC) Instrumentation	TS 3.3.5.3 – Deleted

Basis

TS 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation," ensures initiation of appropriate responses from emergency systems to ensure that the fuel is adequately cooled in the event of a design basis accident or transient. For most Abnormal Operational Transients and Design Basis Accidents (DBAs), a wide range of dependent and independent parameters are monitored. TS 3.3.5.1 is applicable in MODES 1, 2, and 3 in accordance with TS Table 3.3.5.1-1.

TS 3.3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation," supports the requirements of LCO 3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control," and the definition of DRAIN TIME. The RPV Water Inventory Control Instrumentation supports operation of core spray (CS) and low pressure coolant injection (LPCI). TS 3.3.5.2 is applicable in MODES 4 and 5 and when automatic isolation of an associated penetration flow path is credited in calculating DRAIN TIME in accordance with TS Table 3.3.5.2-1.

TS 3.3.5.3, "Reactor Core Isolation Cooling (RCIC) Instrumentation," ensures initiation of actions to ensure adequate core cooling when the reactor vessel is isolated from its primary heat sink (the main condenser) and normal coolant makeup flow from the Reactor Feedwater System is unavailable, such that initiation of the low pressure Emergency Core Cooling Systems (ECCS) pumps does not occur. TS 3.3.5.3 is applicable in MODE 1, and in MODES 2 and 3 with reactor steam dome pressure > 150psig.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 5. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.3.5, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

Current	Proposed
TS 3.3.6.1 – Primary Containment Isolation Instrumentation	TS 3.3.6.1 – Deleted
TS 3.3.6.2 – Secondary Containment Isolation Instrumentation	TS 3.3.6.2 – Deleted
TS 3.3.6.3 – Low-Low Set (LLS) Instrumentation	TS 3.3.6.3 – Deleted

Basis

TS 3.3.6.1, "Primary Containment Isolation Instrumentation," initiates automatic closure of appropriate Primary Containment Isolation Valves (PCIVs) to limit fission product release during and following postulated Design Basis Accidents. Primary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA.TS 3.3.6.1 is applicable in MODES 1, 2 and 3 in accordance with TS Table 3.3.6.1-1.

TS 3.3.6.2, "Secondary Containment Isolation Instrumentation," initiates automatic closure of appropriate Secondary Containment Isolation Valves and/or Dampers (SCIV/Ds) and starts the Standby Gas Treatment (SBGT) System to limit fission product release during and following postulated Design Basis Accidents. Secondary containment isolation and establishment of vacuum with the SBGT System ensures that fission products that leak from primary containment following a DBA, are released outside primary containment, or are released during certain operations when primary containment is not required are maintained within applicable limits. TS 3.3.6.2 is applicable in MODES 1, 2 and 3 in accordance with TS Table 3.3.6.2-1.

TS 3.3.6.3, "Low-Low Set (LLS) Instrumentation," ensures the Safety Relief Valve (SRV) discharge lines are not adversely impacted by thrust loads caused by valve actuation. LLS Instrumentation also mitigates the effects of postulated pressure loads on the torus shell or suppression pool by preventing multiple actuations in rapid succession of the SRVs subsequent to their initial actuation. TS 3.3.6.3 is applicable in MODES 1, 2, and 3.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 3. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.3.6, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

Current	Proposed
TS 3.3.7.1 – Standby Filter Unit (SFU) Instrumentation APPLICABILITY: MODES 1, 2, and 3, During movement of irradiated fuel assemblies in the secondary containment, During CORE ALTERATIONS.	TS 3.3.7.1 – Standby Filter Unit (SFU) Instrumentation APPLICABILITY: ~~MODES 1, 2, and 3,~~ During movement of irradiated fuel assemblies in the secondary containment~~,~~ ~~During CORE ALTERATIONS~~.

Basis

The SFU System is designed to provide a radiologically controlled environment to ensure the habitability of the control room for the safety of control room operators under all plant conditions.

TS 3.3.7.1, "Standby Filter Unit (SFU) Instrumentation," ensures automatic action to pressurize the control building envelope to minimize the consequences of radioactive material in the control building envelope. TS 3.3.7.1 is required in MODES 1, 2, and 3, during movement of irradiated fuel in the secondary containment, and during CORE ALTERATIONS.

The above TS is proposed to be maintained with a change in the required applicability. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the requirement for the SFU System to be operable in MODES 1, 2, and 3, as well as during CORE ALTERATIONS will be deleted as these conditions will not occur at the DAEC once it is permanently defueled.

The remaining TS 3.3.7.1 and associated SRs are retained unchanged. The TS Bases will be updated to be consistent with the proposed TS 3.3.7.1.

Current	Proposed
TS 3.3.8.1 – Loss of Power (LOP) Instrumentation APPLICABILITY: MODES 1, 2, and 3, When the associated Diesel Generator is required to be Operable by LCO 3.8.2, "AC Sources – Shutdown." TS 3.3.8.2 – Reactor Protection System (RPS) Electric Power Monitors	TS 3.3.8.1 – Loss of Power (LOP) Instrumentation APPLICABILITY: ~~MODES 1, 2, and 3,~~ When the associated Diesel Generator is required to be Operable by LCO 3.8.2, "AC Sources~~—Shutdown~~." TS 3.3.8.2 – Deleted

Basis

TS 3.3.8.1, "Loss of Power (LOP) Instrumentation," monitors the 4.16 KV emergency bus voltages and the Startup and Standby Transformer secondary winding voltages. This monitoring ensures that if insufficient power is available, the buses are disconnected from the offsite power sources and connected to the onsite Diesel Generator (DG) power sources.

The above TS is proposed to be maintained with a change in the required applicability. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the requirement for the LOP Instrumentation to be operable in MODES 1, 2, and 3 will be deleted as these conditions will not occur at the DAEC once it is permanently defueled. The requirement for this TS LCO to be met when the associated Diesel Generator is required, by LCO 3.8.2, to be Operable will be maintained since TS 3.8.2, "AC Sources" is being retained in the PDTS. The remaining TS 3.3.8.1 and associated SRs are retained unchanged. The TS Bases will be updated to be consistent with the proposed TS 3.3.8.1.

TS 3.3.8.2, "Reactor Protection System (RPS) Electric Power Monitors," provides protection of electrical loads supplied from the RPS bus against unacceptable voltage and frequency conditions. TS 3.3.8.2 is applicable in MODES 1 and 2 and in MODES 3, 4, and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.

TS 3.3.8.2 assures the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 5. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, TS 3.3.8.2, which only addresses associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion TS 3.3.8.2, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

TS SECTION 3.4 REACTOR COOLANT SYSTEM (RCS)	
Current	Proposed
TS 3.4.1 – Recirculation Loops Operating	TS 3.4.1 – Deleted
TS 3.4.2 – Jet Pumps	TS 3.4.2 – Deleted
TS 3.4.3 – Safety Relief Valves (SRVs) and Safety Valves (SVs)	TS 3.4.3 – Deleted
TS 3.4.4 – RCS Operational LEAKAGE	TS 3.4.4 – Deleted
TS 3.4.5 – RCS Leakage Detection Instrumentation	TS 3.4.5 – Deleted
TS 3.4.6 – RCS Specific Activity	TS 3.4.6 – Deleted
TS 3.4.7 – Residual Heat Removal (RHR) Shutdown Cooling System – Hot Shutdown	TS 3.4.7 – Deleted
TS 3.4.8 – Residual Heat Removal (RHR) Shutdown Cooling System – Cold Shutdown	TS 3.4.8 – Deleted
TS 3.4.9 – RCS Pressure and Temperature (P/T) Limits	TS 3.4.9 – Deleted
TS 3.4.10 – Reactor Steam Dome Pressure	TS 3.4.10 – Deleted

Basis

TS 3.4, "Reactor Coolant System (RCS)," contains LCOs that provide for appropriate control of process variables, design features, or operating restrictions needed for appropriate functional capability of RCS equipment required for safe operation of the facility.

The TS listed below do not apply once the reactor is permanently defueled; therefore, their corresponding LCOs, and associated SRs, are proposed for deletion.

TS 3.4.1, "Recirculation Loops Operating," is applicable in MODES 1 and 2. The Reactor Coolant Recirculation System is designed to provide a forced coolant flow through the core to remove heat from the fuel. The recirculation system also controls reactivity over a wide span of reactor power by varying the recirculation flow rate to control the void content of the reactor coolant. It consists of two recirculation pump loops external to the reactor vessel.

TS 3.4.2, "Jet Pumps," is applicable in MODES 1 and 2. The jet pumps are part of the Reactor Coolant Recirculation System and are designed to provide forced circulation through the core to remove heat from the fuel.

TS 3.4.3, "Safety Relief Valves (SRVs) and Safety Valves (SVs)," ensures the reactor vessel is protected from overpressure during upset conditions by self-actuated safety valves. As part of the nuclear pressure relief system, the SRVs and SVs are designed such that peak pressure in the nuclear system will not exceed the ASME Code limits for the Reactor Coolant Pressure Boundary (RCPB). TS 3.4.3 is applicable in MODES 1, 2, and 3.

TS 3.4.4, "RCS Operational LEAKAGE," is applicable in MODES 1, 2, and 3. Limits on RCS operational LEAKAGE are required to ensure appropriate action is taken before the integrity of the RCPB is impaired. This LCO specifies the types and limits of LEAKAGE to ensure protection of the RCS pressure boundary.

TS 3.4.5, "RCS Leakage Detection Instrumentation," provides a means for detecting and, to the extent practical, identifying the location of the source of RCS leakage. Systems for separating the LEAKAGE of an identified source from an unidentified source are necessary to provide prompt and quantitative information to the operators to permit them to take immediate corrective action. TS 3.4.5 is applicable in MODES 1, 2, and 3.

TS 3.4.6, "RCS Specific Activity," provides limits on the maximum allowable level of radioactivity in the reactor coolant to ensure that in the event of a release of any radioactive material to the environment during a DBA, radiation doses are maintained within the limits of 10 CFR 50.67. TS 3.4.6 is applicable in MODE 1, and in MODES 2 and 3 with any main steam line not isolated.

TS 3.4.7, "Residual Heat Removal (RHR) Shutdown Cooling System – Hot Shutdown," ensures decay heat, produced by irradiated fuel in the shutdown reactor core, is removed to reduce the temperature of the reactor coolant to ≤ 212°F. TS 3.4.7 is applicable in MODE 3 with reactor steam dome pressure less than the RCIC Steam Supply Line Pressure – Low isolation pressure.

TS 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System – Cold Shutdown," also ensures decay heat, produced by irradiated fuel in the shutdown reactor core, is removed to reduce the temperature of the reactor coolant to ≤ 212°F; however, TS 3.4.8 is applicable in MODE 4.

TS 3.4.9, "RCS Pressure and Temperature (P/T) Limits," ensures the pressure and temperature changes during RCS heatup and cooldown remain within the design assumptions and the stress limits for cyclic operation. TS 3.4.9 is applicable at all times.

TS 3.4.10, "Reactor Steam Dome Pressure," ensures compliance with an assumed initial condition of design basis accidents and transients and is conservative to the value used in the determination of compliance with reactor pressure vessel overpressure protection criteria. TS 3.4.10 is applicable in MODES 1 and 2.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 4. TS 3.4.9 applies to pressure and temperature limits of the reactor regardless of MODE. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. With the reactor in a permanently shut down and defueled condition, reactor pressure and temperature limits do not apply. Based on the above, the proposed deletion of all TS in Section 3.4, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

TS SECTION 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM	
<u>Current</u> TS 3.5.1 – ECCS – Operating TS 3.5.2 – Reactor Pressure Vessel (RPV) Water Inventory Control TS 3.5.3 – RCIC System	<u>Proposed</u> TS 3.5.1 – Deleted TS 3.5.2 – Deleted TS 3.5.3 – Deleted
Basis	

TS 3.5, "Emergency Core Cooling Systems (ECCS), RPV Water Inventory Control, and Reactor Core Isolation Cooling (RCIC)," contains LCOs that provide for appropriate control of process variables, design features, or operating restrictions needed for appropriate functional capability of RCS equipment required for safe operation of the facility.

The TS listed below do not apply once the reactor is permanently defueled; therefore, their corresponding LCOs, and associated SRs, are proposed for deletion. Similarly, the corresponding TS Bases are also proposed for deletion.

TS 3.5.1, "ECCS – Operating," is applicable in MODE 1 and in MODES 2 and 3, except High Pressure Coolant Injection (HPCI) is not required to be operable with the reactor steam dome pressure ≤ 150 psig and Automatic Depressurization System (ADS) valves are not required to be operable with the reactor steam dome pressure ≤ 100 psig. The ECCS is designed to limit the release of radioactive materials to the environment following a Loss of Coolant Accident (LOCA). The ECCS network consists of the High Pressure Coolant Injection (HPCI) System, the Core Spray (CS) System, the Low Pressure Coolant Injection (LPCI) mode of the Residual Heat Removal (RHR) System, and the ADS.

TS 3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control," ensures the RPV water level remains above the top of the active irradiated fuel at all times to prevent elevated fuel cladding temperatures when the reactor is in cold shutdown or refueling. TS 3.5.2 is applicable in MODES 4 and 5.

TS 3.5.3, "RCIC System," in MODE 1 and in MODES 2 and 3 with reactor steam dome pressure greater than 150 psig. The RCIC System is designed to operate either automatically or manually following Reactor Pressure Vessel (RPV) isolation accompanied by a loss of coolant flow from the Feedwater System to provide adequate core cooling and control of the RPV water level.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 5. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.5, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

TS SECTION 3.6 CONTAINMENT SYSTEMS	
Current	Proposed
TS 3.6.1.1 – Primary Containment	TS 3.6.1.1 – Deleted
TS 3.6.1.2 – Primary Containment Air Lock	TS 3.6.1.2 – Deleted
TS 3.6.1.3 – Primary Containment Isolation Valves (PCIVs)	TS 3.6.1.3 – Deleted
TS 3.6.1.4 – Drywell Air Temperature	TS 3.6.1.4 – Deleted
TS 3.6.1.5 – Low-Low Set (LLS) Valves	TS 3.6.1.5 – Deleted

TS 3.6.1.6 – Reactor Building-to-Suppression Chamber Vacuum Breakers TS 3.6.1.7 – Suppression Chamber-to-Drywell Vacuum Breakers	TS 3.6.1.6 – Deleted TS 3.6.1.7 – Deleted

Basis

TS 3.6.1.1, "Primary Containment," is applicable in MODES 1, 2, and 3. The function of the primary containment is to isolate and contain fission products released from the Reactor Primary System following a Loss of Coolant Accident (LOCA) and to confine the postulated release of radioactive material.

TS 3.6.1.2, "Primary Containment Air Lock," allows personnel access to the drywell and to provide primary containment isolation during the process of personnel entering and exiting the drywell. TS 3.6.1.2 is applicable in MODES 1, 2, and 3.

TS 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," ensures the PCIVs function to limit fission product release during and following postulated DBAs. TS 3.6.1.3 is applicable in MODES 1, 2, and 3.

TS 3.6.1.4, "Drywell Air Temperature," limits the drywell average air temperature to a value below that used in the UFSAR Chapter 15 safety analyses. TS 3.6.1.4 is applicable in MODES 1, 2, and 3.

TS 3.6.1.5, "Low-Low Set (LLS) Valves," is applicable in MODES 1, 2, and 3. The LLS valves open and stay open so that cycling more than one SRV is prevented on subsequent actuations. This mitigates the induced loads on the containment and the thrust loads on the SRV discharge lines by increasing the time between subsequent SRV actuations. Therefore, the LLS function prevents excessive short duration SRV cycles that would occur with valve actuation at the relief setpoint.

TS 3.6.1.6, "Reactor Building-to-Suppression Chamber Vacuum Breakers," ensures vacuum is relieved when primary containment depressurizes below reactor building pressure. TS 3.6.1.6 is applicable in MODES 1, 2, and 3.

TS 3.6.1.7, "Suppression Chamber-to-Drywell Vacuum Breakers," relieve vacuum in the drywell. TS 3.6.1.7 is applicable in MODES 1, 2, and 3.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 3. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.6.1, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

Current	Proposed
TS 3.6.2.1 – Suppression Pool Average Temperature	TS 3.6.2.1 – Deleted
TS 3.6.2.2 – Suppression Pool Water Level	TS 3.6.2.2 – Deleted
TS 3.6.2.3 – Residual Heat Removal (RHR) Suppression Pool Cooling	TS 3.6.2.3 – Deleted
TS 3.6.2.4 – Residual Heat Removal (RHR) Suppression Pool Spray	TS 3.6.2.4 – Deleted

Basis

TS 3.6.2.1, "Suppression Pool Average Temperature," ensures limitations on the suppression pool average temperature are enforced to provide assurance that the containment conditions assumed for the safety analyses are met. TS 3.6.2.1 is applicable in MODES 1, 2, and 3.

TS 3.6.2.2, "Suppression Pool Water Level," ensures limitations on the suppression pool water level are enforced to provide assurance that the primary containment conditions assumed for the safety analyses are met. TS 3.6.2.1 is applicable in MODES 1, 2, and 3.

TS 3.6.2.3, "Residual Heat Removal (RHR) Suppression Pool Cooling," is required in MODES 1, 2, and 3. The RHR Suppression Pool Cooling (SPC) System can be used to remove heat from the suppression pool following a design basis accident.

TS 3.6.2.4, "Residual Heat Removal (RHR) Suppression Pool Spray," reduces pressure in the suppression chamber. Although not required by the accident analysis to ensure that the suppression chamber remains within the analyzed design pressure and temperature limits, condensing the steam in the suppression chamber airspace reduces the long-term pressure response in the primary containment. TS 3.6.2.4 is applicable in MODES 1, 2, and 3.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 3. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.6.2, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

Current	Proposed
TS 3.6.3.1 – Containment Atmosphere Dilution (CAD) System	TS 3.6.3.1 – Previously deleted by Amendment 265
TS 3.6.3.2 – Primary Containment Oxygen Concentration	TS 3.6.3.2 – Deleted

Basis

TS 3.6.3.2, "Primary Containment Oxygen Concentration," maintains the containment atmosphere with a low concentration of oxygen (i.e., < 4.0 volume percent), rendering it inert to combustion. TS 3.6.3.2 is applicable in MODE 1 from 24 hours after reactor thermal power is > 15% following startup and to 24 hours prior to reducing reactor thermal power to < 15% prior to reactor shutdown.

TS 3.6.3.2 is related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODE 1. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.6.3, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

Current	Proposed
TS 3.6.4.1 – Secondary Containment	TS 3.6.4.1 – Deleted
TS 3.6.4.2 – Secondary Containment Isolation Valves/Dampers (SCIV/Ds)	TS 3.6.4.2 – Deleted
TS 3.6.4.3 – Standby Gas Treatment (SBGT) System	TS 3.6.4.3 – Deleted

Basis

TS 3.6.4.1, "Secondary Containment," is applicable in MODES 1, 2, and 3. The function of the secondary containment is to contain, dilute, and hold up fission products that may leak from primary containment following a Design Basis Accident.

TS 3.6.4.2, "Secondary Containment Isolation Valves/Dampers (SCIV/Ds)," limits fission product release during and following postulated Design Basis Accidents. TS 3.6.4.2 is applicable in MODES 1, 2, and 3.

TS 3.6.4.3, "Standby Gas Treatment (SBGT) System," ensures that radioactive materials that leak from the primary containment into the secondary containment following a Design Basis Accident (DBA) are filtered and adsorbed prior to exhausting to the environment. TS 3.6.4.3 is applicable in MODES 1, 2, and 3.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 3. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.6.4, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

TS SECTION 3.7 PLANT SYSTEMS	
Current	Proposed
TS 3.7.1 – Residual Heat Removal Service Water (RHRSW) System	TS 3.7.1 – Deleted
TS 3.7.2 – River Water Supply (RWS) System and Ultimate Heat Sink (UHS)	TS 3.7.2 – Deleted
TS 3.7.3 – Emergency Service Water System (ESW)	TS 3.7.3 – Deleted
TS 3.7.4 – Standby Filter Unit (SFU) System	TS 3.7.4 – Retain with revisions
TS 3.7.5 – Control Building Chiller (CBC) System	TS 3.7.5 – Retain with revisions
TS 3.7.6 – Main Condenser Offgas	TS 3.7.6 – Deleted
TS 3.7.7 – Main Turbine Bypass System	TS 3.7.7 – Deleted
TS 3.7.8 – Spent Fuel Pool Water Level	TS 3.7.8 – Retain with revisions
TS 3.7.9 – Control Building/Standby Gas Treatment Instrument Air System	TS 3.7.9 – Deleted

Basis
TS 3.7, "Plant Systems," contains LCOs that provide for appropriate control of process variables, design features, or operating restrictions needed for appropriate functional capability of equipment required for safe operation of the facility. The TS proposed for deletion are listed below. Once the reactor is permanently shut down and defueled, these TS do not apply; therefore, their corresponding LCOs, and associated SRs, are proposed for deletion. The TS proposed to be retained, with revisions, are discussed after the deletions. TS 3.7.1, "Residual Heat Removal Service Water (RHRSW) System," is applicable in MODES 1, 2, and 3. The RHRSW System is designed to provide cooling water for the Residual Heat Removal (RHR) System heat exchangers, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. TS 3.7.2, "River Water Supply (RWS) System and Ultimate Heat Sink (UHS)," is applicable in MODES 1, 2, and 3. The RWS System provides cooling water required support for various systems required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The UHS ensures sufficient water inventory is available for the RWS System. Note: RWS and the UHS are support systems required to mitigate the consequences of a FHA. This will be reflected in the TS Bases. TS 3.7.3, "Emergency Service Water System (ESW)," is applicable in MODES 1, 2, and 3. The ESW System provides cooling water for the removal of heat from equipment and various minor heat loads required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The ESW System also provides cooling to unit components, as desired, during normal operation. Note: ESW supports systems required to mitigate the consequences of a FHA. This will be reflected in the TS Bases. TS 3.7.6, "Main Condenser Offgas," reduces the gaseous radwaste emissions during plant operation. TS 3.7.6 is applicable in MODE 1 and in MODES 2 and 3 with any main steam line not isolated and Steam Jet Air Ejectors in operation. TS 3.7.7, "Main Turbine Bypass System," is applicable when reactor thermal power is ≥ 21.7%. The Main Turbine Bypass System is designed to control steam pressure when reactor steam generation exceeds turbine requirements during unit startup, sudden load reduction, and cooldown. It allows excess steam flow from the reactor to the condenser without going through the turbine. TS 3.7.9, "Control Building/Standby Gas Treatment Instrument Air System," provides compressed air to systems and components that function to limit fission product release and control the environment from which the unit can be safely operated following a DBA. TS 3.7.9 is applicable in MODES 1, 2, and 3. Note: This system supports

systems required to mitigate the consequences of a FHA. This will be reflected in the TS Bases.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 3. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of the above TS in Section 3.7, including the associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS sections above deleted, the corresponding TS Bases will also be deleted.

The following TS contain LCOs for plant equipment, and control of process variables, design features, or operating restrictions required for safe maintenance of the facility during a fuel handling accident as described is the UFSAR. As such, these TS will be retained in the PDTS and revised to align with the permanently defueled condition. As follows:

3.7 PLANT SYSTEMS

3.7.4 Standby Filter Unit (SFU) System

LCO 3.7.4 Two SFU subsystems shall be OPERABLE.

---NOTE---
The control building envelope (CBE) boundary may be opened intermittently under administrative control.

APPLICABILITY: ~~MODES 1, 2, and 3,~~
During movement of irradiated fuel assemblies in the secondary containment~~,~~
~~During CORE ALTERATIONS~~.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SFU subsystem inoperable for reasons other than ~~Condition B~~.	A.1 Restore SFU subsystem to OPERABLE status.	7 days
~~B. One or more SFU subsystems inoperable due to inoperable CBE boundary in MODES 1, 2, and 3.~~	~~B.1 Initiate actions to implement mitigating actions.~~ ~~AND~~ ~~B.2 Verify mitigating actions ensure CBE occupant exposures to radiological hazards will not exceed limits and verify by administrative means that CBE occupants are protected from smoke and chemical hazards.~~ ~~AND~~ ~~B.3 Restore CBE boundary to OPERABLE status.~~	~~Immediately~~ ~~24 hours~~ ~~90 days~~

an inoperable CBE boundary

~~C.~~	~~Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.~~	~~C.1 Be in MODE 3.~~ ~~AND~~ ~~C.2 Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~
B ~~D~~.	Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment ~~during CORE ALTERATIONS~~.	~~NOTE~~ ~~LCO 3.0.3 is not applicable.~~ ~~D~~.1 B Place OPERABLE SFU subsystem in the isolation mode. OR ~~D~~.2~~.1~~ B Suspend movement of irradiated fuel assemblies in the secondary containment. ~~AND~~ ~~D.2.2 Suspend CORE ALTERATIONS.~~	Immediately Immediately ~~Immediately~~
~~E.~~	~~Both SFU subsystems inoperable in MODE 1, 2 or 3 for reasons other than Condition B.~~	~~E.1 Enter LCO 3.0.3~~	~~Immediately~~

CONDITION		REQUIRED ACTION	COMPLETION TIME
C ~~F~~.	Both SFU subsystems inoperable during movement of irradiated fuel assembles in the secondary containment ~~during CORE ALTERATIONS~~. OR One or more SFU subsystems inoperable due to an inoperable CBE boundary during movement of irradiated fuel assemblies in the secondary containment ~~during CORE ALTERATIONS~~.	~~NOTE~~ ~~LCO 3.0.3 is not applicable.~~ C ~~F~~.1 Suspend movement of irradiated fuel assemblies in the secondary containment. ~~AND~~ ~~F.2 Suspend CORE ALTERATIONS.~~	 Immediately ~~Immediately~~

3.7 PLANT SYSTEMS

3.7.5 Control Building Chiller (CBC) System

LCO 3.7.5 Two CBC subsystems shall be OPERABLE.

APPLICABILITY: ~~MODES 1, 2, and 3,~~
During movement of irradiated fuel assemblies in the secondary containment~~,~~
~~During CORE ALTERATIONS~~.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CBC subsystem inoperable.	A.1 Restore CBC subsystem to OPERABLE status.	30 days
B. Two CBC subsystems inoperable.	B.1 Verify control building area temperatures < 90°F.	Once per 4 hours
	AND	
	B.2 Restore one CBC subsystem to OPERABLE status.	72 hours
~~C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.~~	~~C.1 Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~C.2 Be in MODE 4.~~	~~36 hours~~

C ~~D~~.	Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment ~~during CORE ALTERATIONS~~.	~~NOTE~~ ~~LCO 3.0.3 is not applicable.~~	
		~~D~~ C.1 Place OPERABLE CBC subsystem in operation.	Immediately
		OR	
		~~D.2.1~~ C Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
		~~AND~~	
		~~D.2.2 Suspend CORE ALTERATIONS.~~	~~Immediately~~
D ~~E~~.	Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies in the secondary containment ~~during CORE ALTERATIONS~~.	~~NOTE~~ ~~LCO 3.0.3 is not applicable.~~	
		~~E~~ D.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
		~~AND~~	
		~~E.2 Suspend CORE ALTERATIONS.~~	~~Immediately~~

3.7 PLANT SYSTEMS

3.7.8 Spent Fuel Storage Pool Water Level

LCO 3.7.8 The spent fuel storage pool water level shall be ≥ 36 ft.

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

ACTIONS

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

Basis

TS 3.7.4, "Standby Filter Unit (SFU) System," is applicable in MODES 1, 2, and 3, during movement of irradiated fuel assemblies in the secondary containment, and during CORE ALTERATIONS. The SFU System provides a protected environment from which occupants can control the unit following an uncontrolled release of radioactivity, hazardous chemicals or smoke. Specifically, the SFU System provides emergency treatment of outside supply air and a Control Building Envelope (CBE) boundary that limits the inleakage of unfiltered air.

TS 3.7.4 is proposed to be maintained with a revision to remove references to MODES, CORE ALTERATIONS and LCO 3.0.3. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the requirement for the SFU to be operable in MODES 1, 2, and 3 and during CORE ALTERATIONS will be deleted as these conditions will not occur at the DAEC once it is permanently defueled. References to LCO 3.0.3 are removed since LCO 3.0.3 has been deleted as discussed earlier. TS 3.7.4 Conditions and Actions will also be revised to align with the permanently defueled condition. TS 3.7.4 SRs will be retained unchanged. The TS Bases will be updated to be consistent with the proposed TS 3.7.4.

TS 3.7.5, "Control Building Chiller (CBC) System," is applicable in MODES 1, 2, and 3, during movement of irradiated fuel assemblies in the secondary containment, and during CORE ALTERATIONS. The CBC System provides temperature control for the control building HVAC system under both normal and accident conditions.

TS 3.7.5 is proposed to be maintained with a revision to remove references to MODES and CORE ALTERATIONS. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the requirement for the CBC to be operable in MODES 1, 2, and 3 and during CORE ALTERATIONS will be deleted as these conditions will not occur at the DAEC once it is permanently defueled. References to LCO 3.0.3 are removed since LCO 3.0.3 has been deleted as discussed earlier. TS 3.7.5 Conditions and Actions will also be revised to align with the permanently defueled condition. TS 3.7.5 SR will be retained unchanged. The TS Bases will be updated to be consistent with the proposed TS 3.7.5.

TS 3.7.8, "Spent Fuel Pool Water Level," is applicable during movement of irradiated fuel assemblies in the spent fuel storage pool. The minimum water level in the spent fuel storage pool ensures the FHA analysis assumptions are met.

TS 3.7.8 is proposed to be maintained with a revision to remove reference to LCO 3.0.3. The reference to LCO 3.0.3 is removed since LCO 3.0.3 has been deleted as discussed earlier.

TS SECTION 3.8 ELECTRICAL POWER SYSTEMS

Current	Proposed
TS 3.8.1 – AC Sources – Operating	TS 3.8.1 – Deleted
TS 3.8.2 – AC Sources – Shutdown	TS 3.8.2 – Retain with revisions
TS 3.8.3 – Diesel Fuel Oil, Lube Oil, and Starting Air	TS 3.8.3 – Unchanged
TS 3.8.4 – DC Sources – Operating	TS 3.8.4 – Deleted
TS 3.8.5 – DC Sources – Shutdown	TS 3.8.5 – Retain with revisions
TS 3.8.6 – Battery Cell Parameters	TS 3.8.6 – Retain with revisions
TS 3.8.7 – Distribution Systems – Operating	TS 3.8.7 – Deleted
TS 3.8.8 – Distribution Systems – Shutdown	TS 3.8.8 – Retain with revisions

Basis
TS 3.8, "Electrical Power Systems," contains LCOs that provide for appropriate functional capability of plant electrical equipment required for safe operation of the facility. The TS proposed for deletion are listed below. Once the reactor is permanently shut down and defueled these TS do not apply; therefore, their corresponding LCOs, and associated SRs, are proposed for deletion. The TS proposed to be retained, with revisions, are discussed after the TS deletions. TS 3.8.1, "AC Sources – Operating," is applicable in MODES 1, 2, and 3. The AC Electrical Power System ensures an available source of power to the Engineered Safety Feature (ESF) Systems via essential buses 1A3 and 1A4. TS 3.8.4, "DC Sources – Operating," is applicable in MODES 1, 2, and 3. The DC Electrical Power System provides the AC Emergency Power System with control power. It also provides both motive and control power to selected safety related equipment. TS 3.8.7, "Distribution Systems – Operating," is applicable in MODES 1, 2, and 3. The AC and DC Electrical Power Distribution Systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF Systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility only when the reactor is in MODES 1 through 3. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of the above TS in Section 3.8, including the associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS sections above deleted, the corresponding TS Bases will also be deleted. The following TS contain LCOs for plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility during a fuel handling accident as described is the UFSAR. As such, these TS will be retained in the PDTS and revised to align with the permanently defueled condition. As follows:

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources ~~— Shutdown~~

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

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems — ~~Shutdown~~"; and

b. One Diesel Generator (DG) capable of supplying one division of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8.

APPLICABILITY: ~~MODES 4 and 5,~~
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

~~NOTE~~
~~LCO 3.0.3 is not applicable.~~

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	----NOTE---- Enter applicable Condition and Required Actions of LCO 3.8.8, with one required division de-energized as a result of Condition A. ----	
	A.1 Declare affected required feature(s), with no offsite power available, inoperable.	Immediately
	<u>OR</u>	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~<u>AND</u>~~	
	A.2.~~2~~ Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	~~<u>AND</u>~~	
	~~A.2.3 Initiate action to restore required offsite power circuit to OPERABLE status.~~	~~Immediately~~
B. One required DG inoperable.	~~B.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~<u>AND</u>~~	
	1 B.~~2~~ Suspend movement of irradiated fuel assemblies in secondary containment	Immediately
	~~<u>AND</u>~~	
	~~B.3 Initiate action to restore required DG to OPERABLE status.~~	~~Immediately~~

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources ~~— Shutdown~~

LCO 3.8.5 DC electrical power subsystems shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems ~~— Shutdown~~."

APPLICABILITY: ~~MODES 4 and 5,~~
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

~~NOTE~~
~~LCO 3.0.3 is not applicable.~~

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	~~A.2.1~~ ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	A.2~~.2~~ Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	~~AND~~	
~~A. (continued)~~	~~A.2.3~~ ~~Initiate action to restore required DC electrical power susbsystems to OPERABLE status.~~	~~Immediately~~

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for the Division I and Division II 125 VDC ~~and the 250 VDC~~ batteries shall be within limits.

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

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Distribution Systems ~~— Shutdown~~

LCO 3.8.8 The necessary portions of the AC and DC electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: ~~MODES 4 and 5.~~
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

~~NOTE~~
~~LCO 3.0.3 is not applicable.~~

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC or DC electrical power distribution subsytems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	OR	
	~~A.2.1~~ ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	A.2~~.2~~ Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	~~AND~~	
	~~A.2.3~~ ~~Initiate action to restore required AC and DC electrical power distribution subsystems to OPERABLE status.~~	~~Immediately~~
	~~AND~~	~~(continued)~~
~~A.~~ ~~(continued)~~	~~A.2.4~~ ~~Declare associated required shutdown cooling subsystem(s) inoperable.~~	~~Immediately~~

Basis
TS 3.8.2, "AC Sources – Shutdown," is applicable in MODES 4 and 5, and during movement of irradiated fuel assemblies in the secondary containment. The AC Electrical Power System ensures an available source of power to the Engineered Safety Feature (ESF) Systems via essential buses 1A3 and 1A4. TS 3.8.2 is proposed to be maintained with revisions to remove references to Shutdown, MODES 4 and 5 and CORE ALTERATIONS. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the requirement for AC Sources to be operable in MODES 4 and 5 and during CORE ALTERATIONS will be deleted as these conditions will not occur at the DAEC once it is permanently defueled. TS 3.8.2 Conditions and Actions will also be revised to align with the permanently defueled condition. Since the specified condition of applicability is exited upon suspension of movement of irradiated fuel assemblies in secondary containment, immediate action to restore inoperable equipment is no longer required. Surveillance Requirements to ensure AC Sources operability will be added to TS 3.8.2. The TS Bases will be updated to be consistent with the proposed TS 3.8.2. TS 3.8.5, "DC Sources – Shutdown," is applicable in is applicable in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment. The DC Electrical Power System provides the AC Emergency Power System with control power. It also provides both motive and control power to selected safety related equipment. TS 3.8.5 is proposed to be maintained with revisions to remove references to Shutdown, MODES 4 and 5, CORE ALTERATIONS and LCO 3.0.3. Reference to LCO 3.0.3 is removed this LCO has been deleted as previously discussed. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the requirement for the DC Sources to be operable in MODES 4 and 5 and references to Shutdown and CORE ALTERATIONS will be deleted as these conditions will not occur at the DAEC once it is permanently defueled. TS 3.8.5 Conditions and Actions will also be revised to align with the permanently defueled condition. Since the specified condition of applicability is exited upon suspension of movement of irradiated fuel assemblies in secondary containment, immediate action to restore inoperable equipment is no longer required. Surveillance Requirements to ensure DC Sources operability will be added to TS 3.8.5. The TS Bases will be updated to be consistent with the proposed TS 3.8.5. TS 3.8.6, "Battery Cell Parameters," is applicable when associated DC electrical power subsystems are required to be OPERABLE. The battery cell parameter requirements

ensure availability of the required DC power to maintain the facility in a safe condition after a postulated FHA.

TS 3.8.6 is proposed to be maintained with revisions to remove references to 250 V DC. The 250 V DC system does not support any equipment needed to mitigate the consequences of a postulated FHA. Surveillance Requirements for the 125 V DC batteries are unchanged, Surveillance Requirements for 250 V DC are deleted. The TS Bases will be updated to be consistent with the proposed TS 3.8.6.

TS 3.8.8, "Distribution Systems – Shutdown," is applicable in is applicable in MODES 4 and 5, and during movement of irradiated fuel assemblies in the secondary containment. The AC and DC Electrical Power Distribution Systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF Systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded

TS 3.8.8 is proposed to be maintained with revisions to remove references to Shutdown, MODES 4 and 5, CORE ALTERATIONS and LCO 3.0.3. Reference to LCO 3.0.3 is removed this LCO has been deleted as previously discussed. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the requirement for the Distribution Systems to be operable in MODES 4 and 5 and references to Shutdown and CORE ALTERATIONS will be deleted as these conditions will not occur at the DAEC once it is permanently defueled. TS 3.8.8 Conditions and Actions will also be revised to align with the permanently defueled condition. Since the specified condition of applicability is exited upon suspension of movement of irradiated fuel assemblies in secondary containment, immediate action to restore inoperable equipment is no longer required. TS 3.8.8 SR will be retained unchanged. The TS Bases will be updated to be consistent with the proposed TS 3.8.8.

TS SECTION 3.9 REFUELING OPERATIONS	
Current	Proposed
TS 3.9.1 – Refueling Equipment Interlocks	TS 3.9.1 – Deleted
TS 3.9.2 – Refuel Position One-Rod-Out Interlock	TS 3.9.2 – Deleted
TS 3.9.3 – Control Rod Position	TS 3.9.3 – Deleted
TS 3.9.4 – Control Rod Position Indication	TS 3.9.4 – Deleted
TS 3.9.5 – Control Rod OPERABILITY - Refueling	TS 3.9.5 – Deleted
TS 3.9.6 – Reactor Pressure Vessel (RPV) Water Level	TS 3.9.6 – Deleted

TS 3.9.7 – Residual Heat Removal (RHR) – High Water Level TS 3.9.8 – Residual Heat Removal (RHR) – Low Water Level	TS 3.9.7 – Deleted TS 3.9.8 – Deleted

Basis

TS 3.9, "Refueling Operations," contains LCOs that provide for appropriate functional capability of parameters and equipment within containment that are required for mitigation of design basis accidents during refueling operations.

The TS listed below do not apply once the reactor is permanently defueled; therefore, their corresponding LCOs, and associated SRs, are proposed for deletion.

TS 3.9.1, "Refueling Equipment Interlocks," is applicable during in-vessel fuel movement with equipment associated with the interlocks when the reactor mode switch is in the Refuel position. Refueling equipment interlocks restrict the operation of the refueling equipment or the withdrawal of control rods to serve as a backup to procedural core reactivity controls to prevent the reactor from achieving criticality during refueling.

TS 3.9.2, "Refuel Position One-Rod-Out Interlock," is applicable in MODE 5 with the reactor mode switch in the Refuel position and any control rod withdrawn. The refuel position one-rod-out interlock restricts the movement of control rods to reinforce unit procedures that prevent the reactor from becoming critical during refueling operations.

TS 3.9.3, "Control Rod Position," prevents loading fuel assemblies into the core with a control rod not fully inserted. TS 3.9.3 is applicable when loading fuel assemblies into the core.

TS 3.9.4, "Control Rod Position Indication," is applicable in MODE 5. The full-in position indication for each control rod provides necessary information to the refueling interlocks to prevent inadvertent criticalities during refueling operations.

TS 3.9.5, "Control Rod OPERABILITY – Refueling," is applicable in MODE 5. TS 3.9.5 provides for the reliable control of reactivity changes during refueling operations, the capability to maintain the reactor subcritical under all conditions and to limit the potential amount and rate of reactivity increase caused by a malfunction in the CRD System.

TS 3.9.6, "Reactor Pressure Vessel (RPV) Water Level," ensures a minimum water level of 23 feet above the top of irradiated fuel assemblies seated within the RPV. TS 3.9.6 is applicable during movement of irradiated fuel assemblies in the RPV and during movement of new fuel assemblies or handling of control rods within the RPV, when irradiated fuel assemblies are seated within the RPV.

TS 3.9.7, "Residual Heat Removal (RHR) – High Water Level," is applicable in MODE 5 with irradiated fuel in the RPV and the water level ≥ 21 feet-1 inch above the top of the RPV flange. The purpose of the RHR System in MODE 5 is to remove decay heat and sensible heat from the reactor coolant.

TS 3.9.8, "Residual Heat Removal (RHR) – Low Water Level," is applicable in MODE 5 with irradiated furl in the RPV and the water level < 21 feet-1 inch above the top of the RPV flange. The purpose of the RHR System in MODE 5 is to remove decay heat and sensible heat from the reactor coolant.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe refueling operation of the facility only when the reactor is in MODE 5 or during movement of fuel assemblies within the RPV. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Consequently, entry into MODE 5 and fuel movement within the RPV are not authorized. Therefore, the TS listed in the previous paragraphs, which only address these specific plant systems, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.9, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

TS SECTION 3.10 SPECIAL OPERATIONS	
Current	Proposed
TS 3.10.1 – System Leakage and Hydrostatic Testing Operation	TS 3.10.1 – Deleted
TS 3.10.2 – Reactor Mode Switch Interlock Testing	TS 3.10.2 – Deleted
TS 3.10.3 – Single Control Rod Withdrawal – Hot Shutdown	TS 3.10.3 – Deleted
TS 3.10.4 – Single Control Rod Withdrawal – Cold Shutdown	TS 3.10.4 – Deleted
TS 3.10.5 – Single Control Rod Drive (CRD) Removal – Refueling	TS 3.10.5 – Deleted
TS 3.10.6 – Multiple Control Rod Withdrawal – Refueling	TS 3.10.6 – Deleted
TS 3.10.7 – Control Rod Testing – Operating	TS 3.10.7 – Deleted
TS 3.10.8 – SHUTDOWN MARGIN (SDM) Test – Refueling	TS 3.10.8 – Deleted

Basis
TS 3.10, "Special Operations," contains LCOs that provide for appropriate functional capability of parameters and equipment required for mitigation of design basis accidents during specific operating scenarios. The TS listed below do not apply once the reactor is permanently defueled; therefore, their corresponding LCOs, and associated SRs, are proposed for deletion. TS 3.10.1, "System Leakage and Hydrostatic Testing Operation," allows certain reactor coolant pressure tests to be performed in MODE 4 when the metallurgical characteristics of the RPV require the pressure testing at temperatures > 212°F (normally corresponding to MODE 3) or to allow completing these reactor pressure tests when the initial conditions do not require temperatures > 212°F. TS 3.10.1 is applicable in MODE 4 with average reactor coolant temperature > 212 °F. TS 3.10.2, "Reactor Mode Switch Interlock Testing," permits operation of the reactor mode switch from one position to another to confirm certain aspects of associated interlocks during periodic tests and calibrations in MODES 3, 4, and 5. TS 3.10.2 is applicable in MODES 3 and 4 with the reactor mode switch in the Run, Startup/Hot Standby, or Refuel position, and MODE 5 with the reactor mode switch in the Run or Startup/Hot Standby position. TS 3.10.3, "Single Control Rod Withdrawal – Hot Shutdown," is applicable in MODE 3 with the reactor mode switch in the Refuel position. The purpose of this LCO is to permit the withdrawal of a single control rod for testing while in Hot Shutdown, by imposing certain restrictions. TS 3.10.4, "Single Control Rod Withdrawal – Cold Shutdown," is applicable in MODE 4 with the reactor mode switch in the Refuel position. The purpose of this LCO is to permit the withdrawal of a single control rod for testing while in Cold Shutdown, by imposing certain restrictions. TS 3.10.5, "Single Control Rod Drive (CRD) Removal – Refueling," permits the removal of a single CRD during refueling operations by imposing certain administrative controls. TS 3.10.5 is applicable in MODE 5 with LCO 3.9.5 not met. TS 3.10.6, "Multiple Control Rod Withdrawal – Refueling," is applicable in MODE 5 with LCO 3.9.3, LCO 3.9.4, or LCO 3.9.5 not met. The purpose of this LCO is to permit multiple control rod withdrawal during refueling by imposing certain administrative controls. TS 3.10.7, "Control Rod Testing – Operating," permits control rod testing, while in MODES 1 and 2, by imposing certain administrative controls. TS 3.10.7 is applicable in

MODES 1 and 2 with LCO 3.1.6 not met.

TS 3.10.8, "SHUTDOWN MARGIN (SDM) Test – Refueling," permits SDM testing to be performed for those plant configurations in which the RPV head is either not in place or the head bolts are not fully tensioned. TS 3.10.8 is applicable in MODE 5 with the reactor mode switch in Startup/Hot Standby position.

The above TSs are related to assuring the appropriate functional capability of plant equipment, and control of process variables, design features, or operating restrictions required for safe operation of the facility during specific operating scenarios. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Therefore, the TS listed in the previous paragraphs, which only address their associated specific plant equipment, control of process variables, design features, or operating restrictions are no longer applicable. Based on the above, the proposed deletion of all TS in Section 3.10, including associated SRs, is acceptable with no impact on continued safe maintenance of the facility. With the TS section deleted in its entirety, the corresponding TS Bases will also be deleted.

TS Section 4.0 DESIGN FEATURES

TS 4.0 contains a brief description of the DAEC location, description and requirements for the DAEC reactor core and a description of and requirements for fuel storage at DAEC.

Current TS	Proposed TS
TS 4.1 Site Location The plant site, which consists of approximately 500 acres, is adjacent to the Cedar River approximately 2.5 miles northeast of the Village of Palo, Iowa. Distance from the reactor centerline to the nearest site boundary is approximately 2000 ft. The boundary of the exclusion area defined in 10 CFR 100 is delineated by the property lines. The distance to the outer boundary of the low population zone is 6 miles. The plan of the site is shown on UFSAR Figures 1.2-1 and 1.2-2.	TS 4.1 Site Location The plant site, which consists of approximately 500 acres, is adjacent to the Cedar River approximately 2.5 miles northeast of the Village of Palo, Iowa. ~~Distance from the reactor centerline to the nearest site boundary is approximately 2000 ft.~~ The boundary of the exclusion area defined in 10 CFR 100 is delineated by the property lines. The distance to the outer boundary of the low population zone is 6 miles. The plan of the site is shown on UFSAR Figures 1.2-1 and 1.2-2.

<table>
<tr><td colspan="2"><u>Basis</u></td></tr>
<tr><td colspan="2">TS 4.1 provides a brief description of the DAEC and its location. Pursuant to 10 CFR 50.82(a)(2), the facility license for DAEC will no longer authorize operation of the reactor or placement or retention of fuel in the reactor. With the reactor permanently shut down and defueled, its location within the site boundary is inconsequential. Therefore, TS 4.1 will be revised to remove this reference to the DAEC reactor centerline. There are no TS Bases associated with TS 4.1.</td></tr>
<tr><td><u>Current TS</u></td><td><u>Proposed TS</u></td></tr>
<tr><td>TS 4.2 Reactor Core</td><td>TS 4.2 will be deleted.</td></tr>
<tr><td colspan="2"><u>Basis</u></td></tr>
<tr><td colspan="2">TS 4.2 contains descriptions of and requirements for fuel assemblies and control rod assemblies in the DAEC reactor core during operation of the unit. Pursuant to 10 CFR 50.82(a)(2), the facility license for DAEC will no longer authorize operation of the reactor or placement or retention of fuel in the reactor. With the reactor permanently shut down and defueled, the operational reactor core, as described in TS 4.2, will no longer exist. Therefore, TS 4.2 will be deleted. Because the TS will not be renumbered, a markup is provided to identify this section as deleted. There are no TS Bases associated with TS 4.2.</td></tr>
<tr><td><u>Current TS</u></td><td><u>Proposed TS</u></td></tr>
<tr><td>4.3 Fuel Storage
4.3.1 <u>Criticality</u>

4.3.1.2 The new fuel storage racks are designed and shall be maintained with:
a. Fuel assemblies having a maximum k-infinity of 1.31 in the normal reactor core configuration at cold conditions;
b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.1 of the UFSAR;
c. $k_{eff} \leq 0.90$ if dry, which includes an allowance for uncertainties as described in Section 9.1 of the UFSAR; and
d. A nominal 6.625 inch center to center distance between fuel assemblies placed in storage racks.</td><td>4.3 Fuel Storage
4.3.1 <u>Criticality</u>

~~4.3.1.2 The new fuel storage racks are designed and shall be maintained with:~~
~~a. Fuel assemblies having a maximum k-infinity of 1.31 in the normal reactor core configuration at cold conditions;~~
~~b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.1 of the UFSAR;~~
~~c. $k_{eff} \leq 0.90$ if dry, which includes an allowance for uncertainties as described in Section 9.1 of the UFSAR; and~~
~~d. A nominal 6.625 inch center to center distance between fuel assemblies placed in storage~~</td></tr>
</table>

	~~racks.~~
4.3.3 Capacity The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 2563 fuel assemblies in a vertical orientation, including no more than 152 fuel assemblies stored in the cask pit in accordance with UFSAR Section 9.1. The new fuel storage vault is equipped with racks for storage of up to 110 fuel assemblies in a vertical orientation.	4.3.3 Capacity The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 2563 fuel assemblies in a vertical orientation, including no more than 152 fuel assemblies stored in the cask pit in accordance with UFSAR Section 9.1. ~~The new fuel storage vault is equipped with racks for storage of up to 110 fuel assemblies in a vertical orientation.~~

Basis
TS 4.3 contains a description of and requirements for fuel storage at DAEC. TS 4.3.1.1 details the design and maintenance of the spent fuel storage racks. This TS section will remain applicable in the permanently shut down and defueled condition. TS 4.3.1.1 is retained without changes. TS 4.3.1.2 details the design and maintenance of the new fuel storage racks. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Consequently, the DAEC will not be receiving or storing new fuel and TS 4.3.1.2 will no longer be applicable. Therefore, TS 4.3.1.2 will be deleted in its entirety. Note: Since 4.3.1.2 is deleted, there is no need to retain the numbering for TS 4.3.1.1. The requirements of 4.3.1.1 will, therefore, appear directly under 4.3.1. TS 4.3.2 ensures SFP water level is maintained to prevent inadvertent draining of the SFP. This TS section will remain applicable in the permanently shut down and defueled condition. TS 4.3.2 is retained without changes. TS 4.3.3 contains a description of and requirements for capacity of the spent fuel pool and the new fuel storage vault. After the certifications required by 10 CFR 50.82(a)(1) are docketed for DAEC, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). Consequently, the DAEC will not be receiving or storing new fuel and the reference to the new fuel vault will no longer be applicable. Therefore, TS 4.3.3 is revised to delete this reference.

There are no TS Bases associated with Section 4.3 of the TS.

TS Section 5.5 Programs and Manuals

This section provides a description and requirements regarding programs and manuals that are to be established, implemented, and maintained. TS 5.5 will remain applicable once the reactor is permanently shut down and defueled. As such, it is proposed to be retained and revised to reflect the permanently defueled condition as described below.

Current TS	Basis for Change
TS 5.5.2 Primary Coolant Sources Outside Containment	TS 5.5.2 will be deleted. This program was established to provide controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. This program is proposed for deletion. Once the DAEC is permanently shut down and defueled, there will no longer be any transient or accident conditions associated with primary coolant sources. Thus, TS 5.5.2 will not be retained.
TS 5.5.5 Component Cyclic or Transient Limit	TS 5.5.5 will be deleted. This program provides controls to track cyclic and transient occurrences to ensure reactor vessel integrity. This program is proposed for deletion. Once the DAEC is permanently shut down and defueled, there will no longer be a need to ensure reactor vessel integrity. Therefore, TS 5.5.5 will not be retained.
TS 5.5.7 Ventilation Filter Testing Program (VFTP)	TS 5.5.7 will be retained with changes. This program was established to implement required testing of Engineered Safety Feature (ESF) filter ventilation systems. Those ESF systems included the SBGT System and the SFU System.

	Once the DAEC is permanently shut down and defueled, the SBGT system is no longer required to be operable and the associated TS have been deleted. Therefore, it is proposed that the VFTP requirements for SBGT be deleted from TS 5.5.7. Since SFU is required post defuel, the VFTP requirements for SFU will be retained and remain unchanged.
TS 5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program	TS 5.5.8 will be retained with changes. This program provides controls for potentially explosive gas mixtures contained in the Offgas System downstream of the recombiners and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks. Once the DAEC is permanently shut down and defueled, the Offgas System is no longer required to be operable and the associated TS have been deleted. Therefore, it is proposed that the monitoring requirements for potentially explosive gas mixtures contained in the Offgas System be deleted from TS 5.5.8. The monitoring requirements for radioactivity contained in unprotected outdoor liquid storage tanks remains unchanged.
TS 5.5.12 Primary Containment Leakage Rate Testing Program	TS 5.5.12 will be deleted. This program was established to implement the leakage rate testing of the primary containment as required by 10 CFR 50.54(o) and 10 CFR 50 Appendix J, Option B, as modified by approved exemptions. The program is proposed for deletion because the DAEC Part 50 license will no longer authorize emplacement or retention of fuel in the reactor vessel once the certifications required by 10 CFR 50.82(a)(1) have been submitted. This program pertains only to

	verifying the operability of the containment systems. The requirements for containment systems (TS 3.6) are being deleted as described previously in this document. Thus, TS 5.5.12 will not be retained.

TS Section 5.6 Reporting Requirements

This section provides a description and requirements for various types of data that must be maintained and reported to the NRC. TS 5.6 will remain applicable once the reactor is permanently shut down and defueled. As such, it is proposed to be retained and revised to reflect the permanently defueled condition. The Reference 2 License Amendment Request submitted to the NRC on April 19, 2019 proposed several changes to TS 5.6. One additional change is proposed to TS 5.6 as part of this request, as discussed below.

Current TS	Basis for Change
TS 5.6.6 Post Accident Monitoring (PAM) Report	TS 5.6.6 will be deleted. A PAM report is required by Conditions B or F of LCO 3.3.3.1. As previously discussed, LCO 3.3.3.1 has been proposed for deletion once the DAEC is permanently shut down and defueled. Therefore, the required conditions to prepare and submit a PAM report no longer apply.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met. NextEra Energy Duane Arnold, LLC (NEDA) has determined that the proposed changes do not require any exemptions or relief from regulatory requirements.

4.1.1 10 CFR 50.82, Termination of License

The portions of 10 CFR 50.82 providing the basis for this license amendment request (LAR) are:

(a) For power reactor licensees—

(1) (i) When a licensee has determined to permanently cease operations the licensee shall, within 30 days, submit a written certification to the NRC, consistent with the requirements of § 50.4(b)(8);

(ii) Once fuel has been permanently removed from the reactor vessel, the licensee shall submit a written certification to the NRC that meets the requirements of § 50.4(b)(9) and;

(2) Upon docketing of the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel, or when a final legally effective order to permanently cease operations has come into effect, the 10 CFR part 50 license no longer authorizes operation of the reactor or emplacement or retention of fuel into the reactor vessel.

By letter dated January 18, 2019 (Accession No. ML19023A196), NEDA provided formal notification to the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.82(a)(1)(i) and 10 CFR 50.4(b)(8) of the intention to permanently cease power operations at the DAEC in the fourth quarter of 2020.

After the certifications of permanent cessation of power operation and of permanent removal of fuel from the DAEC reactor vessel are docketed, in accordance with 10 CFR 50.82(a)(1)(i) and (ii) respectively, and pursuant to 10 CFR 50.82(a)(2), the 10 CFR 50 license will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessel. As a result, DAEC will be authorized only to possess special nuclear material.

4.1.2 10 CFR 50.36 Technical Specifications

In 10 CFR 50.36, the Commission established its regulatory requirements related to the content of the TS.

10 CFR 50.36(c)(6) Decommissioning states:
This paragraph applies only to nuclear power reactor facilities that have submitted the certifications required by § 50.82(a)(1) and to non-power reactor facilities which are not authorized to operate. Technical specifications involving safety limits, limiting safety system settings, and limiting control system settings; limiting conditions for operation; surveillance requirements; design features; and administrative controls will be developed on a case-by-case basis.

After the certifications of permanent cessation of power operation and of permanent removal of fuel from the DAEC reactor vessel are docketed, in accordance with 10 CFR 50.82(a)(1)(i) and (ii) respectively, and pursuant to 10 CFR 50.82(a)(2), the 10 CFR 50 license will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessel. As a result, DAEC will be authorized only to possess special nuclear material. This proposed amendment deleted DAEC TS that are no longer applicable to a permanently defueled facility while modifying some of the remaining TS to correspond to the permanently shut down condition.

4.1.3 10 CFR 50.51, Continuation of License

10 CFR 50.51(b) states:

Each license for a facility that has permanently ceased operations, continues in effect beyond the expiration date to authorize ownership and possession of the production or utilization facility, until the Commission notifies the licensee in writing that the license is terminated. During such period of continued effectiveness the licensee shall:

(1) Take actions necessary to decommission and decontaminate the facility and continue to maintain the facility, including, where applicable, the storage, control and maintenance of the spent fuel, in a safe condition, and

(2) Conduct activities in accordance with all other restrictions applicable to the facility in accordance with the NRC regulations and the provisions of the specific 10 CFR part 50 license for the facility.

4.1.4 10 CFR 50.46, Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Reactors

10 CFR 50.46(a)(1)(i) states "This section does not apply to a nuclear power reactor facility for which the certifications required under §50.82(a)(1) have been submitted."

4.1.5 10 CFR 50.62, Requirements for Reduction of Risk from Anticipated Transients without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants

10 CFR 50.62(a) states "The requirements of this section apply to all commercial lightwater- cooled nuclear power plants, other than nuclear power reactor facilities for which the certifications required under §50.82(a)(1) have been submitted."

4.2 Precedent

The proposed changes are largely consistent with the Post Defueled Technical Specifications currently in effect for the permanently shut down and defueled Vermont Yankee Nuclear Power Station (ML15117A551), Crystal River Nuclear Plant, Unit 3 (Accession No. ML15224B286), San Onofre Nuclear Generating Station, Units 2 and 3 (ML15139A390), Kewaunee Power Stations (ML14237A045), and Fort Calhoun Station Unit 1 (ML18010A087).

4.3 No Significant Hazards Consideration

NextEra Energy Duane Arnold, LLC (NEDA), pursuant to 50.90, requests an amendment to the Duane Arnold Energy Center (DAEC) Technical Specifications (TS). The proposed changes will revise the license and associated TS consistent with the permanent cessation of reactor operation and permanent defueling of the reactor by deleting or revising some TS. The TS requirements being changed would be applicable once it has been certified that all fuel has been permanently removed from the DAEC reactor in accordance with 10 CFR 50.82(a)(1)(ii). Once the final certification is submitted documenting the permanent cessation of operations and permanent fuel removal, the 10 CFR 50 license for DAEC no longer will authorize operation of the reactor or placement of fuel in the reactor vessel, in accordance with 10 CFR 50.82(a)(2).

NEDA has evaluated whether a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The proposed changes would not take effect until DAEC has certified to the NRC that it has permanently ceased operation and entered a permanently defueled condition. Because the 10 CFR Part 50 license for DAEC will no longer authorize operation of the reactor, or emplacement or retention of fuel into the reactor vessel with the certifications required by 10 CFR Part 50.82(a)(1) submitted, as specified in 10 CFR Part 50.82(a)(2), the occurrence of postulated accidents associated with reactor operation is no longer credible. DAEC's accident analyses are contained in Chapter 15 of the Updated Final Safety Analysis Report (UFSAR). In a permanently defueled condition, the only credible UFSAR described accident that remains is the Fuel Handling Accident (FHA). Other Chapter 15 accidents will no longer be applicable to a permanently defueled reactor.

   The UFSAR-described FHA analyses for DAEC shows that, following the required decay time after reactor shutdown and provided the SFP water level requirement of TS LCO 3.7.8 is met, the dose consequences are acceptable without relying on secondary containment or the Standby Gas Treatment System. The control building envelop is credited for reduction of operator dose. Consequently, the TS requirements for the Standby Filter Unit and Control Building Chillers are retained.

   The probability of occurrence of previously evaluated accidents is not increased, since safe storage and handling of fuel will be the only operations performed, and therefore, bounded by the existing analyses. Additionally, the occurrence of postulated accidents associated with reactor operation will no longer be credible in the permanently defueled condition. This significantly reduces the scope of applicable accidents. The deletion of TS definitions and rules of usage and application requirements that will not be applicable in a defueled condition has no impact on facility SSCs or the methods of operation of such SSCs. The deletion of design features and safety limits not applicable to the permanently shut down and defueled DAEC has no impact on the remaining applicable DBA.

The removal of LCOs or SRs that are related only to the operation of the nuclear reactor or only to the prevention, diagnosis, or mitigation of reactor-related transients or accidents do not affect the applicable DBAs previously evaluated since these DBAs are no longer applicable in the permanently defueled condition.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   The proposed changes to delete or modify certain DAEC Operating License, TS, and current licensing bases (CLB) have no impact on facility SSCs affecting the safe storage of spent irradiated fuel, or on the methods of operation of such SSCs, or on the handling and storage of the spent irradiated fuel itself. The removal of TS that are related only to the operation of the nuclear reactor, or only to the prevention, diagnosis, or mitigation of reactor related transients or accidents, cannot result in different or more adverse failure modes or accidents than previously evaluated because the reactor will be permanently shut down and defueled.

   The proposed modification or deletion of requirements of the DAEC Operating License, TS, and CLB do not affect systems credited in the accident analysis for the remaining credible DBA at DAEC. The proposed Operating License and PDTS will continue to require proper control and monitoring of safety significant parameters and activities. The TS regarding SFP water level and spent fuel storage is retained to preserve the current requirements for safe storage of irradiated fuel. The proposed amendment does not result in any new mechanisms that could initiate damage to the remaining relevant safety barriers for defueled plants (fuel cladding, spent fuel racks, SFP integrity, and SFP water level). Since extended operation in a defueled condition and safe fuel handling will be the only operation allowed, and therefore bounded by the existing analyses, such a condition does not create the possibility of a new or different kind of accident.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

   Response: No

   The proposed changes are to delete or modify certain Operating License, TS and CLB once the DAEC facility has been permanently shut down and defueled. As specified in 10 CFR 50.82(a)(2), the 10 CFR 50 license for DAEC will no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel following submittal of the certifications required by 10 CFR 50.82(a)(1). As a result, the occurrence of certain design basis postulated accidents are no longer considered credible when the reactor is permanently defueled.

   The only remaining credible UFSAR described accident is a FHA. The proposed changes do not adversely affect the inputs or assumptions of any of the design basis analyses that impact the FHA.

   The proposed changes are limited to those portions of the Operating License, TS, and CLB that are not related to the safe storage of irradiated fuel. The requirements proposed to be revised or deleted from the Operating License, TS, and CLB are not credited in the existing accident analysis for the remaining postulated accident (i.e., FHA); and, as such, do not contribute to the margin of safety associated with the accident analysis. Certain postulated DBAs involving the reactor are no longer possible because the reactor will be permanently shut down and defueled and DAEC will no longer be authorized to operate the reactor.

   Therefore, the proposed changes have no impact to the margin of safety.

Based on the above, NEDA concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92, and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATIONS

NEDA has evaluated the proposed amendment for environmental considerations. The review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set for in 10 CFR 51.22(c)(9).

In addition, the proposed changes involve changes to recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(10).

Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

6.1 Letter from Mano K. Nazar, NextEra Energy Duane Arnold, LLC to U.S. Nuclear Regulatory Commission - "Duane Arnold Energy Center - Certification of Permanent Cessation of Power Operations," dated January 18, 2019, (ADAMS Accession No. ML19023A196).

6.2 Letter from Dean Curtland, NextEra Energy Duane Arnold, LLC to U.S. Nuclear Regulatory Commission - "License Amendment Request (TSCR-181): Application to Align Technical Specification Staffing and Administrative Requirements for Permanently Defueled Condition," dated April 19, 2019, (ML19109A031).

6.3 Letter from D. Hood (U.S. Nuclear Regulatory Commission) to G. Van Middlesworth – "Issuance of Amendment Regarding Secondary Containment Operability During Movement of Irradiated Fuel and Core Alterations," dated April 16, 2001, (ML011070147).

LIST OF ATTACHMENTS

Attachment 1 - Proposed Technical Specification Changes (Mark-Up)

Attachment 2 - Revised Technical Specification Pages (Clean, with Proposed Changes)

Attachment 3 – Proposed Technical Specification Bases Changes (Mark-Up)

ATTACHMENT 1

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

NEXTERA ENERGY DUANE ARNOLD, LLC
CENTRAL IOWA POWER COOPERATIVE
CORN BELT POWER COOPERATIVE
DOCKET 50-331
DUANE ARNOLD ENERGY CENTER
RENEWED FACILITY ~~OPERATING~~ LICENSE

Renewed License No. DPR-49

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

   A. The application for license filed by FPL Energy Duane Arnold, LLC,* Central Iowa Power Cooperative and Corn Belt Power Cooperative (the licensees) complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I and all required notifications to other agencies or bodies have been duly made;

   Deleted

   B. ~~Construction of the Duane Arnold Energy Center (facility) has been substantially completed in conformity with Construction Permit No. DPPR 70; the application, as amended; the provisions of the Act; and the rules and regulations of the Commission~~;

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

   D. There is reasonable assurance: (i) that the activities authorized by this renewed ~~operating~~ license can be conducted without endangering the health and safety of the public; and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;

   E. NextEra Energy Duane Arnold, LLC is technically qualified and NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative and Corn Belt Power Cooperative are financially qualified to engage in the activities authorized by this renewed ~~operating~~ license in accordance with the rules and regulations of the Commission;

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

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

   H. After weighing the environmental, economic, technical, and other benefits of the facility against environmental costs and considering available alternatives, the issuance of renewed Facility ~~Operating~~ License No. DPR-49 is in accordance with 10 CFR Part 50, Appendix D, of the Commission's regulations and all applicable requirements of said Appendix D have been satisfied;

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*On April 16, 2009, the name "FPL Energy Duane Arnold, LLC" was changed to "NextEra Energy Duane Arnold, LLC."

Amendment

Deleted

I. ~~The receipt, possession, and use of source, by-product and special nuclear material as authorized by this renewed operating license will be in accordance with the Commission's regulations in 10 CFR Part 30 and 70, including 10 CFR Section 30.33, 70.24 and 70.31~~.

permanently defueled

2. Renewed Facility ~~Operating~~ License No. DPR-49 is hereby issued to NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative (CIPCO) and Corn Belt Power Cooperative (Corn Belt) to read as follows:

   A. This renewed ~~operating~~ license applies to the Duane Arnold Energy Center, a boiling water reactor and associated equipment (the facility), owned by NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative and Corn Belt Power Cooperative and operated by NextEra Energy Duane Arnold, LLC. The facility is located on NextEra Energy Duane Arnold, LLC's, Central Iowa Power Cooperative's and Corn Belt Power Cooperative's site near Palo in Linn County, Iowa. This site consists of approximately 500 acres adjacent to the Cedar River and is described in the "Final Safety Analysis Report" as supplemented and amended (Amendments 1 through 14) and the Environmental Report as supplemented and amended (Supplements 1 through 5).

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

      as required for nuclear fuel storage

      (1) NextEra Energy Duane Arnold, LLC, pursuant to Section104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess, ~~use~~ and ~~operate~~ the facility, and CIPCO and Corn Belt to possess the facility at the designated location in Linn County, Iowa, in accordance with the procedures and limitations set forth in this license; use

      that was used

      (2) NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Part 70, to ~~receive,~~ possess ~~and use~~ at any time special nuclear material as reactor fuel, in accordance with the limitations for storage ~~and amounts required for reactor operation~~, as described in the Updated Final Safety Analysis Report, as supplemented and amended as of June 1992 and as supplemented by letters dated March 26, 1993, and November 17, 2000.

      or

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

      (4) NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated radioactive apparatus components;

      that were

      (5) NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear materials ~~as may be~~ produced by the operation of the facility.

and to possess any byproduct, source and special nuclear material as sealed neutron sources previously used for reactor startup or reactor instrumentation; and fission detectors;

C. This renewed ~~operating~~ license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I; Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) ~~Maximum Power Level~~ Deleted

~~NextEra Energy Duane Arnold, LLC is authorized to operate the Duane Arnold Energy Center at steady state reactor core power levels not in excess of 1912 megawatts (thermal).~~

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. ~~307~~, are hereby incorporated in the license. Permanently Defueled NextEra Energy Duane Arnold, LLC shall maintain ~~operate~~ the facility in accordance with the Technical Specifications.

~~(a) For Surveillance Requirements (SRs) whose acceptance criteria are modified, either directly or indirectly, by the increase in authorized maximum power level in 2.C.(1) above, in accordance with Amendment No. 243 to Facility Operating License DPR 49, those SRs are not required to be performed until their next scheduled performance, which is due at the end of the first surveillance interval that begins on the date the Surveillance was last performed prior to implementation of Amendment No. 243.~~

~~(b) Deleted.~~

(3) Fire Protection Program

NextEra Energy Duane Arnold, LLC shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated August 5, 2011 (and supplements dated October 14, 2011, April 23, 2012, May 23, 2012, July 9, 2012, October 15, 2012, January 11, 2013, February 12, 2013, March 6, 2013, May 1, 2013, May 29, 2013, two supplements dated July 2, 2013, and supplements dated August 5, 2013 and August 28, 2013) and as approved in the safety evaluation report dated September 10, 2013. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

Risk-Informed Changes that May Be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

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

(b) Prior NRC review and approval is not required for individual changes that result in a risk increase less than 1×10^{-7}/year (yr) for CDF and less than 1×10^{-8}/yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

Other Changes that May Be Made Without Prior NRC Approval

1. Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program. Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to NFPA 805, Chapter 3 element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

   The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3 elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

- Fire Alarm and Detection Systems (Section 3.8);
- Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
- Gaseous Fire Suppression Systems (Section 3.10); and,
- Passive Fire Protection Features (Section 3.11).

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

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

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC safety evaluation report dated September 10, 2013 to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

Transition License Conditions

(1) Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) and (3) below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.

(2) The licensee shall implement the modifications to its facility, as described in Enclosure 2, Attachment S, Table S-1, "Plant modifications Committed," of DAEC letter NG-13-0287, dated July 2, 2013, to complete the transition to full compliance with 10 CFR 50.48(c) by December 31, 2014. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

(3) The licensee shall implement the items listed in Enclosure 2, Attachment S, Table S-2, "Implementation Items," of DAEC letter NG-13-0287, dated July 2, 2013, by March 9, 2014.

Deleted

(4) ~~The licensee is authorized to operate the Duane Arnold Energy Center following installation of modified safe ends on the eight primary recirculation system inlet lines which are described in the licensee letter dated July 31, 1978, and supplemented by letter dated December 8, 1978~~.

(5) Physical Protection

NextEra Energy Duane Arnold, LLC shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Duane Arnold Energy Center Physical Security Plan," submitted by letter dated May 16, 2006.

NextEra Energy Duane Arnold, LLC shall fully implement and maintain in effect all provisions of the Commission-approved Duane Arnold Energy Center/NextEra Energy Duane Arnold, LLC Cyber Security Plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Duane Arnold Energy Center/NextEra Energy Duane Arnold, LLC CSP was approved by License Amendment No. 278, as supplemented by changes approved by license Amendment No. 284 and Amendment 291.

(6) Deleted

(7) Additional Conditions

The Additional Conditions contained in Appendix B, as revised through Amendment No. 279, are hereby incorporated into this license. NextEra Energy Duane Arnold, LLC shall operate the facility in accordance with the Additional Conditions.

(8) The licensee is authorized to revise the Updated Final Safety Analysis Report by deleting the footnote for Section 9.1.4.4.5 which states: "*The NRC has not endorsed the reactor building crane as single-failure proof (Reference 9)," and by deleting Reference 9 of the references for Section 9.1.

(9) Mitigation Strategy License Condition

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

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

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

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

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

Deleted

(11) ~~The information in the UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), shall be incorporated into the UFSAR no later than the next scheduled update required by 10 CFR 50.71(e) following the issuance of this renewed operating license. Until this update is complete, the licensee may not make changes to the information in the supplement. Following incorporation into the UFSAR, the need for prior Commission approval of any changes will be governed by 10 CFR 50.59.~~

Deleted

(12) ~~The UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), and as supplemented by Appendix A of NUREG-1955, "Safety Evaluation Report Related to the License Renewal of Duane Arnold Energy Center," dated November 2010, as supplemented by letter from the licensee to the NRC dated November 23, 2010, describes certain programs to be implemented and activities to be completed before the period of extended operation.~~

~~a. NextEra Energy Duane Arnold, LLC shall implement those new programs and enhancements to existing programs no later than February 21, 2014.~~

~~b. NextEra Energy Duane Arnold, LLC shall complete those activities no later than February 21, 2014.~~

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

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(13) ~~The licensee shall implement the most recent staff approved version of the Boiling Water Reactor Vessels and Internals Project (BWRVIP) Integrated Surveillance Program (ISP) as the method to demonstrate compliance with the requirements of 10 CFR Part 50, Appendix H. Any changes to the BWRVIP ISP capsule withdrawal schedule must be submitted for staff review and approval. Any changes to the BWRVIP ISP capsule withdrawal schedule which affects the time of withdrawal of any surveillance capsules must be incorporated into the licensing basis. If any surveillance capsules are removed without the intent to test them, these capsules must be stored in a manner which maintains them in a condition which would support re-insertion into the reactor pressure vessel if necessary.~~

D. This license is effective as of the date of issuance and ~~shall expire at midnight February 21, 2034.~~ is effective until the Commission notifies the licensee in writing that the license is terminated.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by Eric J. Leeds

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Enclosures:

1. Appendix A Technical Specifications
2. Appendix B Additional Conditions

Date of Issuance: December 16, 2010

APPENDIX B

ADDITIONAL CONDITIONS

~~OPERATING~~ LICENSE NO. DPR-49

NextEra Energy Duane Arnold, LLC (the term licensee in Appendix B refers to NextEra Energy Duane Arnold, LLC or prior license holders) shall comply with the following conditions on the schedule noted below:

Amendment Number	Additional Conditions	Implementation Date
223 275	NextEra Energy Duane Arnold, LLC is authorized to relocate certain requirements included in Appendix A to licensee-controlled documents. Implementation of this amendment shall include the relocation of these requirements to the appropriate documents, as described in the licensee's application dated October 30, 1996, as supplemented and consolidated in its March 31, 1998, submittal. These relocations were evaluated in the NRC staff's Safety Evaluation enclosed with this amendment.	This amendment is effective immediately and shall be implemented within 180 days of the date of this amendment.
260 (1) 275	~~At the time of the closing of the transfer of the license from Interstate Power and Light Company (IPL) to FPLE Duane Arnold*, IPL shall transfer to FPLE Duane Arnold* IPL's decommissioning funds accumulated as of such time, with a aggregate minimum value of at least $186 million, and FPLE Duane Arnold* shall deposit such funds in an external decommissioning trust fund established by FPLE Duane Arnold* for DAEC.~~ NextEra the ~~Energy~~ Duane Arnold shall take all necessary steps to ensure ~~that~~ ~~this~~ external trust fund established at the time of the closing of the transfer of the license from Interstate Power and Light Company (IPL) to FPLE Duane Arnold is maintained in accordance with the requirements of ~~the~~ December 23, 2005 order approving the license transfer, NRC regulations, and consistent with the safety evaluation supporting the order. The trust agreement shall be in a form acceptable to the NRC.	This amendment is effective immediately and shall be implemented within 30 days of the date of this amendment.

~~* On April 16, 2009, the name "FPL Energy Duane Arnold, LLC" was changed to "NextEra Energy Duane Arnold, LLC."~~

Amendment Number	Additional Conditions	Implementation Date
260 (2) 279	DELETED	
260 (3) DELETED	~~NextEra Energy Duane Arnold shall take no action to cause FPL Group Capital, or its successors and assigns, to void, cancel, or modify its \$50 million contingency commitment to NextEra Energy Duane Arnold, as represented in the license transfer application, or cause it to fail or perform or impair its performance under the commitment, or remove or interfere with NextEra Energy Duane Arnold's ability to draw upon the commitment, without the prior written consent from the NRC. An executed copy of the Support Agreement shall be submitted to the NRC no later than 30 days after completion of the license transfer. Also, NextEra Energy Duane Arnold shall inform the NRC in writing any time that it draws upon the \$50 million commitment.~~	

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.
~~AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)~~	~~The APLHGR shall be applicable to a specific planar height and is equal to the sum of the heat generation rate per unit length of fuel rod for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.~~
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with Resistance Temperature Detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.

(continued)

1.1 Definitions (continued)

CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps.
~~CORE ALTERATION~~	~~CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS:~~ ~~a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and~~ ~~b. Control rod movement, provided there are no fuel assemblies in the associated core cell.~~ ~~Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.~~

(continued)

1.1 Definitions (continued)

~~CORE OPERATING LIMITS REPORT (COLR)~~	~~The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.~~
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/ml), that alone would produce the same dose as the quantity and isotopic mixture of 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 Federal Guidance Report (FGR) 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1989 and FGR 12, "External Exposure to Radionuclides in Air, Water, and Soil," 1993.
~~DRAIN TIME~~	~~The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the Reactor Vessel Water Level Safety Limit of T.S. 2.1.1.3 assuming:~~ ~~a) The water inventory above the T.S. 2.1.1.3 Safety Limit is divided by the limiting drain rate;~~ ~~(cont'd)~~

(continued)

1.1 Definitions (continued)

~~DRAIN TIME (cont'd)~~

~~b) The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the T.S. 2.1.1.3 Safety Limit except:~~

~~1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;~~

~~2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the T.S. 2.1.1.3 Safety Limit when actuated by RPV water level isolation instrumentation; or~~

~~3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the T.S. 2.1.1.3 Safety Limit by a dedicated operator trained in the task, who is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.~~

~~c) The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;~~

~~d) No additional draining events occur; and~~

~~e) Realistic cross-sectional areas and drain rates are used.~~

~~A bounding DRAIN TIME may be used in lieu of a calculated value.~~

(continued)

1.1 Definitions (continued)

~~END OF CYCLE RECIRCULATION PUMP TRIP (EOC RPT) SYSTEM RESPONSE TIME~~	~~The EOC RPT SYSTEM RESPONSE TIME shall be that time interval from initial signal generation by the associated turbine stop valve limit switch or from when the turbine control valve hydraulic oil control oil pressure drops below the pressure switch setpoint to actuation of the breaker secondary (auxiliary) contact. 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.~~
~~INSERVICE TESTING~~	~~The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).~~

(continued)

1.1 Definitions (continued)

~~LEAKAGE~~	~~LEAKAGE shall be:~~ ~~a. Identified LEAKAGE~~ ~~1. LEAKAGE into the drywell, such as that from pump seals or valve packing, that is captured and conducted to a sump or collecting tank; or~~ ~~2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known not to interfere with the operation of leakage detection systems;~~ ~~b. Unidentified LEAKAGE~~ ~~All LEAKAGE into the drywell that is not identified LEAKAGE;~~ ~~c. Total LEAKAGE~~ ~~Sum of the identified and unidentified LEAKAGE.~~
LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for OPERABILITY of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.
~~MINIMUM CRITICAL POWER RATIO (MCPR)~~	~~The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience transition boiling, divided by the actual assembly operating power. Transition boiling means the boiling regime between nucleate and film boiling. Transition boiling is the regime in which both nucleate and~~

(continued)

1.1 Definitions (continued)

~~MINIMUM CRITICAL POWER RATIO (MCPR)~~	~~film boiling occur intermittently with neither type being completely stable.~~
~~MODE~~	~~A MODE shall correspond to any one inclusive combination of mode switch position, 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, division, 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, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
~~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 5.6.7.~~
~~RATED THERMAL POWER (RTP)~~	~~RTP shall be a total reactor core heat transfer rate to the reactor coolant of 1912 MWt.~~
~~REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME~~	~~The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. 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.~~

(continued)

1.1 Definitions (continued)

~~SHUTDOWN MARGIN (SDM)~~	~~SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical throughout the operating cycle assuming that:~~ ~~a.~~ ~~The reactor is xenon free;~~ ~~b.~~ ~~The moderator temperature is ≥ 68°F (20°C), corresponding to the most reactive state; and~~ ~~c.~~ ~~All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn with the core in its most reactive state during the operating cycle. With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.~~

(continued)

1.1 Definitions (continued)

~~THERMAL POWER~~	~~THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.~~
~~TURBINE BYPASS SYSTEM RESPONSE TIME~~	~~The TURBINE BYPASS SYSTEM RESPONSE TIME consists of two components:~~ ~~a. The time from initial movement of the main turbine stop valve or control valve until 80% of the turbine bypass capacity is established; and~~ ~~b. The time from initial movement of the main turbine stop valve or control valve until initial movement of the turbine bypass valve.~~ ~~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.~~

~~(continued)~~

~~Table 1.1-1 (page 1 of 1)~~
~~MODES~~

~~MODE~~	~~TITLE~~	~~REACTOR MODE SWITCH POSITION~~	~~AVERAGE REACTOR COOLANT TEMPERATURE (°F)~~
~~1~~	~~Power Operation~~	~~Run~~	~~NA~~
~~2~~	~~Startup~~	~~Refuel[a] or Startup/Hot Standby~~	~~NA~~
~~3~~	~~Hot Shutdown[a]~~	~~Shutdown~~	~~> 212~~
4	~~Cold Shutdown[a]~~	~~Shutdown~~	~~≤ 212~~
~~5~~	~~Refueling[b]~~	~~Shutdown or Refuel~~	~~NA~~

~~(a) All reactor vessel head closure bolts fully tensioned.~~

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

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE

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

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

BACKGROUND

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

When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.

EXAMPLES

The following examples illustrate the use of logical connectors.

(continued)

1.2 Logical Connectors

EXAMPLES (continued)

Example 1.2-1

ACTIONS

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

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

(continued)

1.2 Logical Connectors

EXAMPLES (continued)

Example 1.2-2

ACTIONS

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

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

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE

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

BACKGROUND

INSERT 1.3-1

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 Times(s).

DESCRIPTION

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of 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. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.

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

Once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will <u>not</u> 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.

(continued)

1.3 Completion Times

DESCRIPTION (continued)

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

a. Must exist concurrent with the first inoperability; and

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

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

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

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

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

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

(continued)

1.3 Completion Times (continued)

EXAMPLES

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

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

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

The Required Actions of Condition B are to be in MODE 3 within 12 hours AND in MODE 4 within 36 hours. A total of 12 hours is allowed for reaching MODE 3 and a total of 36 hours (not 48 hours) is allowed for reaching MODE 4 from the time that Condition B was entered. If MODE 3 is reached within 6 hours, the time allowed for reaching MODE 4 is the next 30 hours because the total time allowed for reaching MODE 4 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 4 is the next 36 hours.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable.	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

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

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

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

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-2 (continued)

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

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

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

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

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-3 (continued)

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

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

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

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 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 (plus the extension) expires while one or more valves are still inoperable, Condition B is entered.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

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

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

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-5 (continued)

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

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

EXAMPLE 1.3-6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x. OR A.2 Reduce THERMAL POWER to ≤ 50% RTP.	Once per 8 hours 8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-6 (continued)

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

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

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated. AND A.2 Restore subsystem to OPERABLE status.	1 hour AND Once per 8 hours thereafter 72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

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

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1

(continued)

1.3 Completion Times

EXAMPLES	EXAMPLE 1.3-7 (continued) is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.
IMMEDIATE COMPLETION TIME	When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

INSERT 1.3-1 Page 1 of 1

The following discussion and examples contain references to reactor thermal power and reactor MODES. Specifically, Required Actions of several examples direct a change in reactor thermal power or entry into various reactor MODES. Although these Required Actions do not apply to a permanently shut down and defueled facility, the discussion and examples are retained because they continue to have illustrative value. For purposes of these examples, reactor MODES are defined below.

MODE 1 – Power Operation

MODE 2 – Startup

MODE 3 – Hot Shutdown, reactor coolant > 212°F

MODE 4 – Cold Shutdown, reactor coolant ≤ 212°F

MODE 5 – Refueling

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE

INSERT 1.4-1

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

DESCRIPTION

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

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

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

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

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

(continued)

1.4 Frequency

DESCRIPTION (continued)

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:

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 discusses these special situations.

(continued)

1.4 Frequency (continued)

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.

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the interval specified in the Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Examples 1.4-3 and 1.4-4), then SR 3.0.3 becomes applicable.

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

(continued)

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

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

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

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the extension allowed by SR 3.0.2.

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

(continued)

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 within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day interval (plus the extension allowed by SR 3.0.2), 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.

(continued)

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.

(continued)

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.

(continued)

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.

INSERT 1.4-1 Page 1 of 1

The following discussion and examples contain references to reactor thermal power and reactor MODES. Specifically, Required Actions of several examples direct a change in reactor thermal power or entry into various reactor MODES. Although these Required Actions do not apply to a permanently shut down and defueled facility, the discussion and examples are retained because they continue to have illustrative value. For purposes of these examples, reactor MODES are defined below.

MODE 1 – Power Operation

MODE 2 – Startup

MODE 3 – Hot Shutdown, reactor coolant > 212°F

MODE 4 – Cold Shutdown, reactor coolant ≤ 212°F

MODE 5 – Refueling

2.0 ~~SAFETY LIMITS (SLs)~~

~~2.1 SLs~~

~~2.1.1 Reactor Core SLs~~

~~2.1.1.1 Fuel Cladding Integrity — With the reactor steam dome pressure < 686 psig or core flow < 10% rated core flow:~~

~~THERMAL POWER shall be ≤ 21.7% RTP.~~

~~2.1.1.2 MCPR — With the reactor steam dome pressure ≥ 686 psig and core flow ≥ 10% rated core flow:~~

~~MCPR shall be ≥ 1.08 for two recirculation loop operation or ≥ 1.11 for single recirculation loop operation.~~

~~2.1.1.3 Reactor Vessel Water Level — Reactor vessel water level shall be greater than 15 inches above the top of active irradiated fuel.~~

~~2.1.2 Reactor Coolant System Pressure SL~~

~~Reactor steam dome pressure shall be ≤ 1335 psig.~~

~~2.2 SL Violations~~

~~With any SL violation, the following actions shall be completed within 2 hours:~~

~~2.2.1 Restore compliance with all SLs; and~~

~~2.2.2 Fully insert all insertable rods.~~

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1

LCOs shall be met during the ~~MODES or other~~ specified conditions in the Applicability, except as provided in LCO 3.0.2~~, LCO 3.0.7, LCO 3.0.8, and LCO 3.0.9~~.

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

Deleted.

~~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 2 within 9 hours;~~

~~b.~~ ~~MODE 3 within 13 hours; and~~

~~c.~~ ~~MODE 4 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, and 3.~~

LCO 3.0.4

When an LCO is not met, entry into a ~~MODE or other~~ specified condition in the Applicability shall only be made:

a. When the associated ACTIONS to be entered permit continued operation in the ~~MODE or other~~ specified condition in the Applicability for an unlimited period of time;

(continued)

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the ~~MODE or other~~ specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or

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

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

LCO 3.0.5

Deleted.

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

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.11, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

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

(continued)

3.0 LCO APPLICABILITY (continued)

LCO 3.0.7

Deleted.

~~Special Operations LCOs in Section 3.10 allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Special Operations LCOs is optional. When a Special Operations LCO is desired to be met but is not met, the ACTIONS of the Special Operations LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.~~

LCO 3.0.8

Deleted.

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

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

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

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

LCO 3.0.9

When one or more required barriers are unable to perform their related support function(s), any supported system LCO(s) are not required to be declared not met solely for this reason for up to 30 days provided that at least one train or subsystem of the supported system is OPERABLE and supported by barriers capable of providing their related

(continued)

3.0 LCO APPLICABILITY (continued)

LCO 3.0.9 (continued)

support function(s), and risk is assessed and managed. This specification may be concurrently applied to more than one train or subsystem of a multiple train or subsystem supported system provided at least one train or subsystem of the supported system is OPERABLE and the barriers supporting each of these trains or subsystems provide their related support function(s) for different categories of initiating events.

~~For the purposes of this specification, the High Pressure Coolant Injection system, the Reactor Core Isolation Cooling system, and the Automatic Depressurization System are considered independent subsystems of a single system.~~

If the required OPERABLE train or subsystem becomes inoperable while this specification is in use, it must be restored to OPERABLE status within 24 hours or the provisions of this specification cannot be applied to the trains or subsystems supported by the barriers that cannot perform their related support function(s).

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

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1

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

SR 3.0.2

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

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

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

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3

If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. 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.

(continued)

3.0 SR APPLICABILITY (continued)

SR 3.0.4

Entry into a ~~MODE or other~~ specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a ~~MODE or other~~ specified condition in the Applicability shall only be made in accordance with LCO 3.0.4.

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

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3.1 ~~REACTIVITY CONTROL SYSTEMS~~

~~3.1.1 SHUTDOWN MARGIN (SDM)~~

~~LCO 3.1.1~~ ~~SDM shall be:~~

~~a.~~ ~~≥ 0.38% Δk/k, with the highest worth control rod analytically determined; or~~

~~b.~~ ~~≥ 0.28% Δk/k, with the highest worth control rod determined by test.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~SDM not within limits in MODE 1 or 2.~~	~~A.1~~ ~~Restore SDM to within limits.~~	~~6 hours~~
~~B.~~ ~~Required Action and associated Completion Time of Condition A not met.~~	~~B.1~~ ~~Be in MODE 3.~~	~~12 hours~~
~~C.~~ ~~SDM not within limits in MODE 3.~~	~~C.1~~ ~~Initiate action to fully insert all insertable control rods.~~	~~Immediately~~
~~D.~~ ~~SDM not within limits in MODE 4.~~	~~D.1~~ ~~Initiate action to fully insert all insertable control rods.~~ ~~AND~~	~~Immediately~~ ~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~D. (continued)~~	~~D.2 Initiate action to restore secondary containment to OPERABLE status.~~	~~1 hour~~
	~~AND~~	
	~~D.3 Initiate action to restore one Standby Gas Treatment (SBGT) subsystem to OPERABLE status.~~	~~1 hour~~
	~~AND~~	
	~~D.4 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.~~	~~1 hour~~
~~E. SDM not within limits in MODE 5.~~	~~E.1 Suspend CORE ALTERATIONS except for control rod insertion and fuel assembly removal.~~	~~Immediately~~
	~~AND~~	
	~~E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.~~	~~Immediately~~
	~~AND~~	

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~E.~~ ~~(continued)~~	~~E.3~~ ~~Initiate action to restore secondary containment to OPERABLE status.~~	~~1 hour~~
	~~AND~~	
	~~E.4~~ ~~Initiate action to restore one SBGT subsystem to OPERABLE status.~~	~~1 hour~~
	~~AND~~	
	~~E.5~~ ~~Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.~~	~~1 hour~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~				~~FREQUENCY~~
~~SR 3.1.1.1~~	~~Verify SDM is:~~			~~Prior to each in vessel fuel movement during fuel loading sequence~~ ~~AND~~ ~~Once within 4 hours after criticality following fuel movement within the reactor pressure vessel or control rod replacement~~
		~~a.~~	~~≥ 0.38% Δk/k with the highest worth control rod analytically determined; or~~	
		~~b.~~	~~≥ 0.28% Δk/k with the highest worth control rod determined by test.~~	

~~3.1 REACTIVITY CONTROL SYSTEMS~~

~~3.1.2 Reactivity Anomalies~~

~~LCO 3.1.2~~ ~~The reactivity difference between the monitored core k_{eff} and the predicted core k_{eff} shall be within ± 1% Δk/k.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. Core reactivity difference not within limit.~~	~~A.1 Restore core reactivity difference to within limit.~~	~~72 hours~~
~~B. Required Action and associated Completion Time not met.~~	~~B.1 Be in MODE 3.~~	~~12 hours~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.1.2.1~~	~~Verify core reactivity difference between the monitored core k_{eff} and the predicted core k_{eff} is within ± 1% Δk/k.~~	~~Once within 24 hours after reaching equilibrium conditions following startup after fuel movement within the reactor pressure vessel or control rod replacement~~ ~~AND~~ ~~1000 MWD/T thereafter during operations in MODE 1~~

~~3.1 REACTIVITY CONTROL SYSTEMS~~

~~3.1.3 Control Rod OPERABILITY~~

~~LCO 3.1.3~~ ~~Each control rod shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each control rod.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One withdrawn control rod stuck.~~	~~NOTE~~ ~~Rod Worth Minimizer (RWM) may be bypassed as allowed by LOC 3.3.2.1, "Control Rod Block Instrumentation," if required, to allow continued operation.~~	
	~~A.1 Verify stuck control rod separation criteria are met.~~	~~Immediately~~
	~~AND~~	
	~~A.2 Disarm the associated Control Rod Drive (CRD).~~	~~2 hours~~
	~~AND~~	~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. (continued)~~	~~A.3 Perform SR 3.1.3.2 for each withdrawn OPERABLE control rod.~~ ~~AND~~ ~~A.4 Perform SR 3.1.1.1~~	~~24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the Low Power Setpoint (LPSP) of the RWM.~~ ~~72 hours~~
~~B. Two or more withdrawn control rods stuck.~~	~~B.1 Be in MODE 3.~~	~~12 hours~~
~~C. One or more control rods inoperable for reasons other than Condition A or B.~~	~~C.1~~ ~~NOTE~~ ~~RWM may be bypassed as allowed by LCO 3.3.2.1, if required, to allow insertion of inoperable control rod and continued operation.~~ ~~Fully insert inoperable control rod.~~ ~~AND~~	 ~~3 hours~~ ~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C.~~ ~~(continued)~~	~~C.2~~ ~~Disarm the associated CRD.~~	~~4 hours~~
~~D.~~ ~~NOTE~~ ~~Not applicable when THERMAL POWER > 10% RTP.~~ ~~Two or more inoperable control rods not in compliance with Banked Position Withdrawal Sequence (BPWS) and not separated by two or more OPERABLE control rods.~~	~~D.1~~ ~~Restore compliance with BPWS.~~ ~~OR~~ ~~D.2~~ ~~Restore control rod to OPERABLE status.~~	~~4 hours~~ ~~4 hours~~
~~E.~~ ~~Required Action and associated Completion Time of Condition A, C, or D, not met.~~ ~~OR~~ ~~Nine or more control rods inoperable.~~	~~E.1~~ ~~Be in MODE 3.~~	~~12 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.1.3.1~~	~~Determine the position of each control rod.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.1.3.2~~	~~NOTE~~ ~~Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than 20% RTP.~~ ~~Insert each withdrawn control rod at least one notch.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.1.3.3~~	~~Verify each control rod scram time from fully withdrawn to notch position 04 is $\leq$ 7 seconds.~~	~~In accordance with SR 3.1.4.1 and SR 3.1.4.2~~
~~SR 3.1.3.4~~	~~Verify each withdrawn control rod does not go to the withdrawn overtravel position.~~	~~Each time the control rod is withdrawn to "full out" position~~ ~~AND~~ ~~Prior to declaring control rod OPERABLE after work on control rod or GRD System that could affect coupling~~

~~(continued)~~

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~~3.1 REACTIVITY CONTROL SYSTEMS~~

~~3.1.4 Control Rod Scram Times~~

~~LCO 3.1.4~~

~~a.~~ ~~No more than 6 OPERABLE control rods shall be "slow," in accordance with Table 3.1.4-1; and~~

~~b.~~ ~~No more than 2 OPERABLE control rods that are "slow" shall occupy adjacent locations.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Requirements of the LCO not met.~~	~~A.1~~ ~~Be in MODE 3.~~	~~12 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTE~~

~~During single control rod scram time Surveillances, the Control Rod Drive (CRD) pumps shall be isolated from the associated scram accumulator.~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.1.4.1~~	~~Verify each control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.~~	~~Prior to exceeding 40% RTP after each refueling~~ ~~AND~~ ~~(continued)~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.1.4.1~~	~~(continued)~~	~~Prior to exceeding 40% RTP after each reactor shutdown ≥ 120 days~~
~~SR 3.1.4.2~~	~~Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.~~	~~Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time~~ ~~AND~~ ~~Prior to exceeding 40% RTP after fuel movement within the reactor pressure vessel~~

~~Table 3.1.4-1 (page 1 of 1)~~
~~Control Rod Scram Times~~

~~NOTES~~

~~1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."~~

~~2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to notch position 04. These control rods are inoperable, in accordance with SR 3.1.3.3, and are not considered "slow."~~

~~NOTCH POSITION~~	~~SCRAM TIMES[(a)] (seconds) when REACTOR STEAM DOME PRESSURE ≥ 800 psig~~
~~46~~	~~0.44~~
~~38~~	~~0.93~~
~~26~~	~~1.83~~
~~06~~	~~3.35~~

~~(a) Maximum scram time from fully withdrawn position, based on de-energization of scram pilot valve solenoids at time zero.~~

~~3.1 REACTIVITY CONTROL SYSTEMS~~

~~3.1.5 Control Rod Scram Accumulators~~

~~LCO 3.1.5~~ ~~Each control rod scram accumulator shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~NOTE~~
~~Separate Condition entry is allowed for each control rod scram accumulator.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One control rod scram accumulator inoperable with reactor steam dome pressure ≥ 900 psig.~~	~~A.1 NOTE~~ ~~Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance.~~ ~~Declare the associated control rod scram time "slow."~~	 ~~8 hours~~
	~~OR~~	
	~~A.2 Declare the associated control rod inoperable.~~	~~8 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. Two or more control rod scram accumulators inoperable with reactor steam dome pressure ≥ 900 psig.~~	~~B.1 Restore charging water header pressure to ≥ 940 psig.~~	~~1 hour from discovery of condition B concurrent with charging water header pressure < 940 psig~~
	~~AND~~	
	~~B.2.1 NOTE~~ ~~Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance.~~ ~~Declare the associated control rod scram time "slow."~~	~~1 hour~~
	~~OR~~	
	~~B.2.2 Declare the associated control rod inoperable.~~	~~1 hour~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. One or more control rod scram accumulators inoperable with reactor steam dome pressure < 900 psig.~~	~~C.1 Verify all control rods associated with inoperable accumulators are fully inserted.~~	~~Immediately upon discovery of charging water header pressure < 940 psig~~
	~~AND~~	
	~~C.2 Declare the associated control rod inoperable.~~	~~1 hour~~
~~D. Required Action and associated Completion Time of Required Action B.1 or C.1 not met.~~	~~D.1 ------NOTE------ Not applicable if all inoperable control rod scram accumulators are associated with fully inserted control rods.~~	
	~~Place the reactor mode switch in the Shutdown position.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.1.5.1~~	~~Verify each control rod scram accumulator pressure is ≥ 940 psig.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.1 REACTIVITY CONTROL SYSTEMS~~

~~3.1.6 Rod Pattern Control~~

~~LCO 3.1.6~~ ~~OPERABLE control rods shall comply with the requirements of the Banked Position Withdrawal Sequence (BPWS).~~

~~APPLICABILITY:~~ ~~MODES 1 and 2 with THERMAL POWER ≤ 10% RTP.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One or more OPERABLE control rods not in compliance with BPWS.~~	~~A.1 ------NOTE------ Rod Worth Minimizer (RWM) may be bypassed as allowed by LCO 3.3.2.1, "Control Rod Block Instrumentation."~~	
	~~Move associated control rod(s) to correct position.~~	~~8 hours~~
	~~OR~~	
	~~A.2 Declare associated control rod(s) inoperable.~~	~~8 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. Nine or more OPERABLE control rods not in compliance with BPWS.~~	~~B.1 ---NOTE--- Rod Worth Minimizer (RWM) may be bypassed as allowed by LCO 3.3.2.1.~~	
	~~Suspend withdrawal of control rods.~~	~~Immediately~~
	~~AND~~	
	~~B.2 Place the reactor mode switch in the Shutdown position.~~	~~1 hour~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.1.6.1~~	~~Verify all OPERABLE control rods comply with BPWS.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.1 REACTIVITY CONTROL SYSTEMS~~

~~3.1.7 Standby Liquid Control (SLC) System~~

~~LCO 3.1.7~~ ~~Two SLC subsystems shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One SLC subsystem inoperable.~~	~~A.1~~ ~~Restore SLC subsystem to OPERABLE status.~~	~~7 days~~
~~B.~~ ~~Two SLC subsystems inoperable.~~	~~B.1~~ ~~Restore one SLC subsystem to OPERABLE status.~~	~~8 hours~~
~~C.~~ ~~Required Action and associated Completion Time not met.~~	~~C.1~~ ~~Be in MODE 3.~~	~~12 hours~~

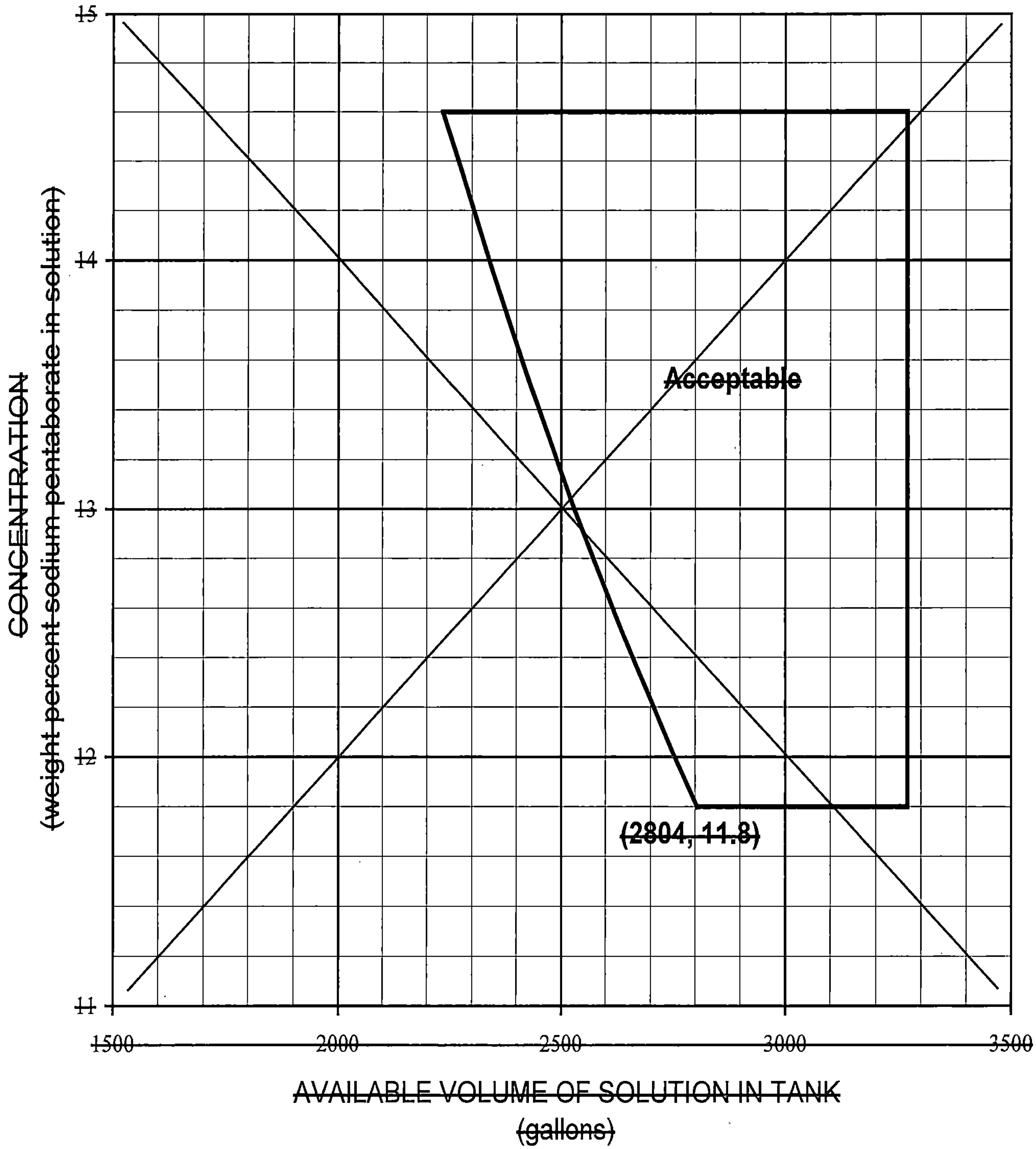
~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.1.7.1~~	~~Verify available volume of sodium pentaborate solution is within the limits of Figure 3.1.7-1.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.1.7.2~~	~~Verify temperature of sodium pentaborate solution is within the limits of Figure 3.1.7-2.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.1.7.3~~	~~Verify temperature of pump suction piping is within the limits of Figure 3.1.7-2.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.1.7.4~~	~~Verify continuity of explosive charge.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.1.7.5~~	~~Verify the concentration of boron in solution is within the limits of Figure 3.1.7-1.~~	~~In accordance with the Surveillance Frequency Control Program~~ ~~AND~~ ~~Once within 24 hours after water or boron is added to solution~~ ~~AND~~ ~~Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-2~~

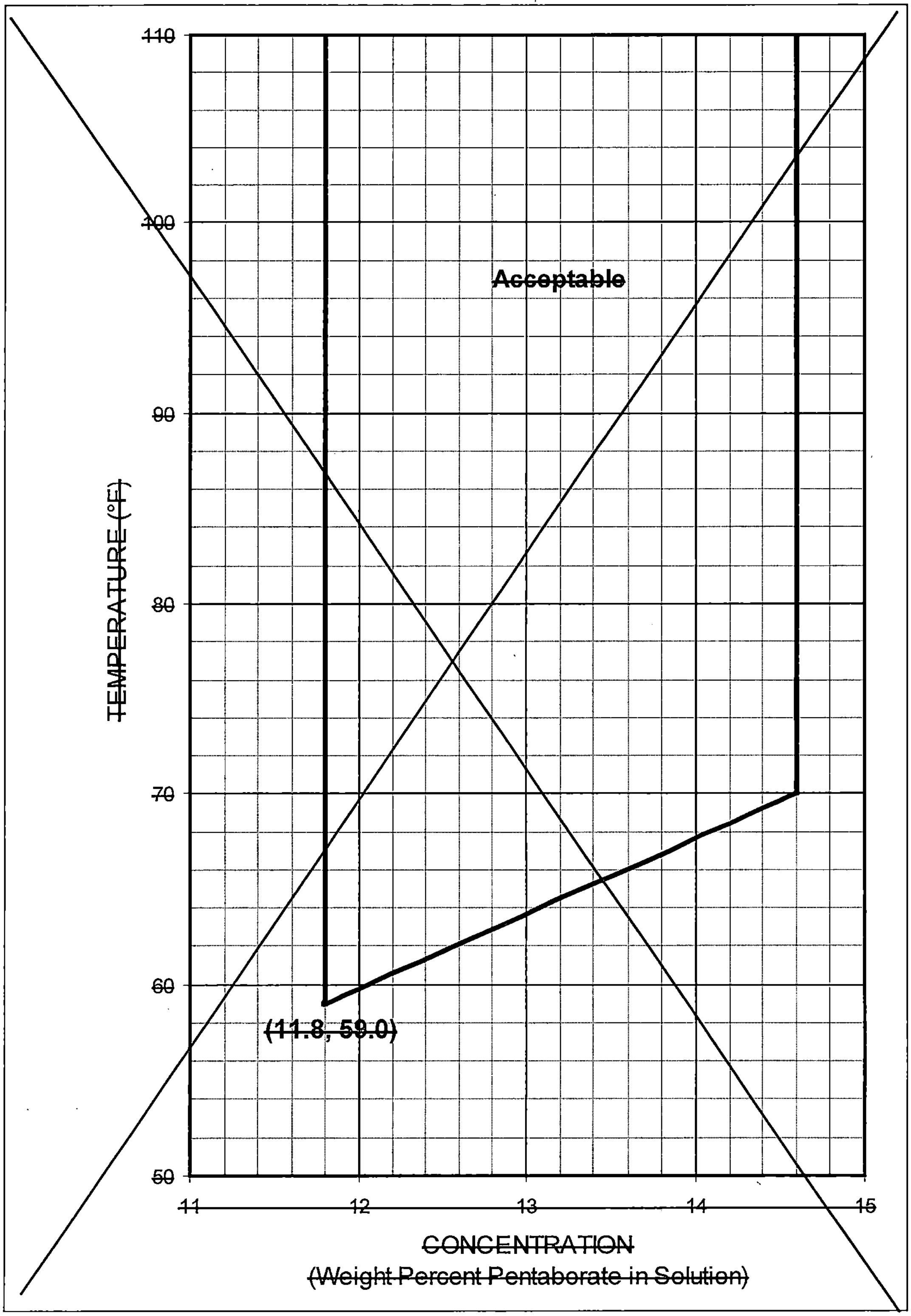
~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.1.7.6~~	~~Verify each pump develops a flow rate ≥ 26.2 gpm at a discharge pressure ≥ 1150 psig.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~
~~SR 3.1.7.7~~	~~Verify flow through one SLC subsystem from pump into reactor pressure vessel.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.1.7.8~~	~~Verify all heat traced piping between storage tank and pump suction is unblocked.~~	~~In accordance with the Surveillance Frequency Control Program~~ ~~AND~~ ~~Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-2~~



~~Figure 3.1.7-1 (page 1 of 1)~~
~~Sodium Pentaborate Solution Volume~~
~~Versus Concentration Requirements~~



~~Figure 3.1.7-2 (page 1 of 1)~~
~~Sodium Pentaborate Solution Temperature Versus Concentration Requirements~~

~~3.1 REACTIVITY CONTROL SYSTEMS~~

~~3.1.8 Scram Discharge Volume (SDV) Vent and Drain Valves~~

~~LCO 3.1.8~~ ~~Each SDV vent and drain valve shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~NOTES~~

1. ~~Separate Condition entry is allowed for each SDV vent and drain line.~~
2. ~~An isolated line may be unisolated under administrative control to allow draining and venting of the SDV.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One or more SDV vent or drain lines with one valve inoperable.~~	~~A.1 Isolate the associated line..~~	~~7 days~~
~~B. One or more SDV vent or drain lines with both valves inoperable.~~	~~B.1 Isolate the associated line.~~	~~8 hours~~
~~C. Required Action and associated Completion Time not met.~~	~~C.1 Be in MODE 3.~~	~~12 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.1.8.1~~	~~NOTE~~ ~~Not required to be met on vent and drain valves closed during the performance of SR 3.1.8.2.~~ ~~Verify each SDV vent and drain valve is open.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.1.8.2~~	~~Cycle each SDV vent and drain valve to the fully closed and fully open position.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~
~~SR 3.1.8.3~~	~~Verify each SDV vent and drain valve:~~ ~~a. Closes in ≤ 30 seconds after receipt of an actual or simulated scram signal; and~~ ~~b. Opens when the actual or simulated scram signal is reset.~~	~~In accordance with the Surveillance Frequency Control Program~~

DELETED

3.2 ~~POWER DISTRIBUTION LIMITS~~

~~3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)~~

~~LCO 3.2.1~~ ~~All APLHGRs shall be less than or equal to the limits specified in the COLR.~~

~~APPLICABILITY:~~ ~~THERMAL POWER ≥ 21.7% RTP.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. Any APLHGR not within limits.~~	~~A.1 Restore APLHGR(s) to within limits.~~	~~2 hours~~
~~B. Required Action and associated Completion Time not met.~~	~~B.1 Reduce THERMAL POWER to < 21.7% RTP.~~	~~4 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.2.1.1~~	~~Verify all APLHGRs are less than or equal to the limits specified in the COLR.~~	~~Once within 12 hours after ≥ 21.7% RTP~~ ~~AND~~ ~~In accordance with the Surveillance Frequency Control Program~~

~~3.2 POWER DISTRIBUTION LIMITS~~

~~3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)~~

~~LCO 3.2.2~~ ~~All MCPRs shall be greater than or equal to the MCPR operating limits specified in the COLR.~~

~~APPLICABILITY:~~ ~~THERMAL POWER ≥ 21.7% RTP.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Any MCPR not within limits.~~	~~A.1~~ ~~Restore MCPR(s) to within limits.~~	~~2 hours~~
~~B.~~ ~~Required Action and associated Completion Time not met.~~	~~B.1~~ ~~Reduce THERMAL POWER to < 21.7% RTP.~~	~~4 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.2.2.1~~	~~Verify all MCPRs are greater than or equal to the limits specified in the COLR.~~	~~Once within 12 hours after ≥ 21.7% RTP~~ ~~AND~~ ~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.2.2.2~~	~~Determine the MCPR limits.~~	~~Once within 72 hours after each completion of SR 3.1.4.1~~ ~~AND~~ ~~Once within 72 hours after each completion of SR 3.1.4.2.~~

3.3 INSTRUMENTATION DELETED

3.3.1.1 ~~Reactor Protection System (RPS) Instrumentation~~

3.3.1.2 DELETED
3.3.2.1 DELETED
3.3.3.1 DELETED
3.3.3.2 DELETED
3.3.4.1 DELETED
3.3.4.2 DELETED
3.3.5.1 DELETED
3.3.5.2 DELETED
3.3.5.3 DELETED
3.3.6.1 DELETED
3.3.6.2 DELETED
3.3.6.3 DELETED

~~LCO 3.3.1.1~~ ~~The RPS instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~According to Table 3.3.1.1-1.~~

~~ACTIONS~~

~~NOTE~~
~~Separate Condition entry is allowed for each channel.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more required channels inoperable.~~	~~A.1~~ ~~Place channel in trip.~~ ~~OR~~ ~~A.2~~ ~~Place associated trip system in trip.~~	~~12 hours~~ ~~12 hours~~
~~B.~~ ~~One or more Functions with one or more required channels inoperable in both trip systems.~~	~~B.1~~ ~~Place channel in one trip system in trip.~~ ~~OR~~ ~~B.2~~ ~~Place one trip system in trip.~~	~~6 hours~~ ~~6 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~		~~REQUIRED ACTION~~		~~COMPLETION TIME~~
~~C.~~	~~One or more Functions with RPS trip capability not maintained.~~	~~C.1~~	~~Restore RPS trip capability.~~	~~1 hour~~
~~D.~~	~~Required Action and associated Completion Time of Condition A, B, or C not met.~~	~~D.1~~	~~Enter the Condition referenced in Table 3.3.1.1-1 for the channel.~~	~~Immediately~~
~~E.~~	~~As required by Required Action D.1 and referenced in Table 3.3.1.1-1.~~	~~E.1~~	~~Reduce THERMAL POWER to < 26% RTP.~~	~~4 hours~~
~~F.~~	~~As required by Required Action D.1 and referenced in Table 3.3.1.1-1.~~	~~F.1~~	~~Be in MODE 2.~~	~~8 hours~~
~~G.~~	~~As required by Required Action D.1 and referenced in Table 3.3.1.1-1.~~	~~G.1~~	~~Be in MODE 3.~~	~~12 hours~~
~~H.~~	~~As required by Required Action D.1 and referenced in Table 3.3.1.1-1.~~	~~H.1~~	~~Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTES~~

1. ~~Refer to Table 3.3.1.1-1 to determine which SRs apply for each RPS Function.~~

2. ~~When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains RPS trip capability.~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.1.1.1~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.2~~	~~NOTE~~ ~~Not required to be performed until 12 hours after THERMAL POWER ≥ 21.7% RTP.~~ ~~Verify the absolute difference between the Average Power Range Monitor (APRM) channels and the calculated power is ≤ 2% RTP plus any gain adjustment required by LCO 3.4.1, "Recirculation Loops Operating," while operating at ≥ 21.7% RTP.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.3~~	~~Perform a functional test of each automatic scram contactor.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.4~~	~~NOTE~~ ~~Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2.~~ ~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.1.1.5~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.6~~	~~Verify the Source Range Monitor (SRM) and Intermediate Range Monitor (IRM) channels overlap.~~	~~Prior to withdrawing SRMs from the fully inserted position~~
~~SR 3.3.1.1.7~~	~~NOTE~~ ~~Only required to be met during entry into MODE 2 from MODE 1.~~ ~~Verify the IRM and APRM channels overlap.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.8~~	~~Calibrate the local power range monitors.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.9~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.10~~	~~Calibrate the trip units.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.11~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.1.1.12~~	~~NOTES~~ ~~1. Neutron detectors are excluded.~~ ~~2. For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2.~~ ~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.13~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.14~~	~~NOTES~~ ~~1. Neutron detectors are excluded.~~ ~~2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2.~~ ~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.15~~	~~Perform LOGIC SYSTEM FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.16~~	~~Verify Turbine Stop Valve Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure – Low Functions are not bypassed when THERMAL POWER is ≥ 26% RTP.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.1.1.17~~	~~Adjust the channel to conform to a calibrated flow signal.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.18~~	~~Verify the RPS RESPONSE TIME is within limits.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.1.19~~	~~Verify the RPS logic system response time is within limits.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~Table 3.3.1.1-1 (page 1 of 3)~~
~~Reactor Protection System Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER TRIP SYSTEM~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION D.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~1. Intermediate Range Monitors~~					
~~a. Neutron Flux - High~~	~~2~~	~~2~~	~~G~~	~~SR 3.3.1.1.1~~ ~~SR 3.3.1.1.4~~ ~~SR 3.3.1.1.6~~ ~~SR 3.3.1.1.7~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~≤ 125/125 divisions of full scale~~
	~~5[(a)]~~	~~2~~	~~H~~	~~SR 3.3.1.1.1~~ ~~SR 3.3.1.1.5~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~≤ 125/125 divisions of full scale~~
~~b. Inop~~	~~2~~	~~2~~	~~G~~	~~SR 3.3.1.1.4~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~NA~~
	~~5[(a)]~~	~~2~~	~~H~~	~~SR 3.3.1.1.5~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~NA~~
~~2. Average Power Range Monitors~~					
~~a. Neutron Flux - Upscale, Startup~~	~~2~~	~~2~~	~~G~~	~~SR 3.3.1.1.1~~ ~~SR 3.3.1.1.4~~ ~~SR 3.3.1.1.7~~ ~~SR 3.3.1.1.8~~ ~~SR 3.3.1.1.12~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~≤ 16.6% RTP~~
~~b. Flow Biased - High~~	~~1~~	~~2~~	~~F~~	~~SR 3.3.1.1.1~~ ~~SR 3.3.1.1.2~~ ~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.8~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.12~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.17~~ ~~SR 3.3.1.1.19~~	~~≤ (0.55W + 67.7) [(b) (c)]~~

~~(Continued)~~

~~(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.~~

~~(b) When reset for single loop operation per LCO 3.4.1, "Recirculation Loops Operating," the following Allowable Value applies:~~

~~≤ (0.55W + 61.4) [(c)]~~

~~The trip setpoints may be reset by adjusting APRM gain or by recalibrating the APRMs.~~

~~(c) W is equal to the percentage of the drive flow, where 100% drive flow is that required to achieve 100% core flow at 100% RTP.~~

~~Table 3.3.1.1-1 (page 2 of 3)~~
~~Reactor Protection System Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER TRIP SYSTEM~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION D.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~2. Average Power Range Monitors (continued)~~					
~~c. High Value Clamp~~	~~1~~	~~2~~	~~F~~	~~SR 3.3.1.1.2~~ ~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.8~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.12~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~≤ 121.6% RTP~~
~~d. Inop~~	~~1,2~~	~~2~~	~~G~~	~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~NA~~
~~3. Reactor Vessel Steam Dome Pressure - High~~	~~1,2~~	~~2~~	~~G~~	~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.11~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.18~~ ~~SR 3.3.1.1.19~~	~~≤ 1069.2 psig~~
~~4. Reactor Vessel Water Level - Low~~	~~1,2~~	~~2~~	~~G~~	~~SR 3.3.1.1.1~~ ~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.18~~ ~~SR 3.3.1.1.19~~	~~≥ 165.6 inches~~
~~5. Main Steam Isolation Valve - Closure~~	~~1~~	~~4~~	~~F~~	~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~≤ 10% closed~~
~~6. Drywell Pressure - High~~	~~1,2~~	~~2~~	~~G~~	~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~≤ 2.2 psig~~

~~(continued)~~

~~Table 3.3.1.1-1 (page 3 of 3)~~
~~Reactor Protection System Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER TRIP SYSTEM~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION D.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~7. Scram Discharge Volume Water Level - High~~					
~~a. Resistance Temperature Detector~~	~~1,2~~	~~2~~	~~G~~	~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.10~~ ~~SR 3.3.1.1.13~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~≤ 769 ft - 3.0 inches~~
	~~5(a)~~	~~2~~	~~H~~	~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.10~~ ~~SR 3.3.1.1.13~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~≤ 769 ft - 3.0 inches~~
~~b. Float Switch~~	~~1,2~~	~~2~~	~~G~~	~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~≤ 769 ft - 2.8 inches~~
	~~5(a)~~	~~2~~	~~H~~	~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.19~~	~~≤ 769 ft - 2.8 inches~~
~~8. Turbine Stop Valve - Closure~~	~~≥ 26% RTP~~	~~4~~	~~E~~	~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.16~~ ~~SR 3.3.1.1.19~~	~~≤ 10% closed~~
~~9. Turbine Control Valve Fast Closure, Trip Oil Pressure - Low~~	~~≥ 26% RTP~~	~~2~~	~~E~~	~~SR 3.3.1.1.3~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.14~~ ~~SR 3.3.1.1.15~~ ~~SR 3.3.1.1.16~~ ~~SR 3.3.1.1.19~~	~~≥ 465 psig~~
~~10. Reactor Mode Switch - Shutdown Position~~	~~1,2~~	~~1~~	~~G~~	~~SR 3.3.1.1.13~~ ~~SR 3.3.1.1.15~~	~~NA~~
	~~5(a)~~	~~1~~	~~H~~	~~SR 3.3.1.1.13~~ ~~SR 3.3.1.1.15~~	~~NA~~
~~11. Manual Scram~~	~~1,2~~	~~1~~	~~G~~	~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.15~~	~~NA~~
	~~5(a)~~	~~1~~	~~H~~	~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.15~~	~~NA~~

~~(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.~~

~~3.3 INSTRUMENTATION~~

~~3.3.1.2 Source Range Monitor (SRM) Instrumentation~~

~~LCO 3.3.1.2~~ ~~The SRM instrumentation in Table 3.3.1.2-1 shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~According to Table 3.3.1.2-1.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One or more required SRMs inoperable in MODE 2 with Intermediate Range Monitors (IRMs) on Range 2 or below.~~	~~A.1 Restore required SRMs to OPERABLE status.~~	~~4 hours~~
~~B. Three required SRMs inoperable in MODE 2 with IRMs on Range 2 or below.~~	~~B.1 Suspend control rod withdrawal.~~	~~Immediately~~
~~C. Required Action and associated Completion Time of Condition A or B not met.~~	~~C.1 Be in MODE 3.~~	~~12 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~D. One or more required SRMs inoperable in MODE 3 or 4.~~	~~D.1 Fully insert all insertable control rods.~~	~~1 hour~~
	~~AND~~	
	~~D.2 Place reactor mode switch in the shutdown position.~~	~~1 hour~~
~~E. One or more required SRMs inoperable in MODE 5.~~	~~E.1 Suspend CORE ALTERATIONS except for control rod insertion.~~	~~Immediately~~
	~~AND~~	
	~~E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTE~~

~~Refer to Table 3.3.1.2-1 to determine which SRs apply for each applicable MODE or other specified conditions.~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.1.2.1~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.2.2~~	~~NOTES~~ ~~1. Only required to be met during CORE ALTERATIONS.~~ ~~2. One SRM may be used to satisfy more than one of the following.~~ ~~Verify an OPERABLE SRM detector is located in :~~ ~~a. The fueled region;~~ ~~b. The core quadrant where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region; and~~ ~~c. A core quadrant adjacent to where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.2.3~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.1.2.4~~	~~NOTE~~ ~~Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant.~~ ~~Verify count rate is ≥ 3.0 cps.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.2.5~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.2.6~~	~~NOTE~~ ~~Not required to be performed until 12 hours after IRMs on Range 2 or below.~~ ~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.1.2.7~~	~~NOTES~~ ~~1. Neutron detectors are excluded.~~ ~~2. Not required to be performed until 12 hours after IRMs on Range 2 or below.~~ ~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~Table 3.3.1.2-1 (page 1 of 1)~~
~~Source Range Monitor Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS~~	~~SURVEILLANCE REQUIREMENTS~~
~~1. Source Range Monitor~~	~~2[(a)]~~	~~3~~	~~SR 3.3.1.2.1~~ ~~SR 3.3.1.2.4~~ ~~SR 3.3.1.2.6~~ ~~SR 3.3.1.2.7~~
	~~3,4~~	~~2~~	~~SR 3.3.1.2.3~~ ~~SR 3.3.1.2.4~~ ~~SR 3.3.1.2.6~~ ~~SR 3.3.1.2.7~~
	~~5~~	~~2[(b),(c)]~~	~~SR 3.3.1.2.1~~ ~~SR 3.3.1.2.2~~ ~~SR 3.3.1.2.4~~ ~~SR 3.3.1.2.5~~ ~~SR 3.3.1.2.7~~

~~(a) With IRMs on Range 2 or below.~~

~~(b) Only one SRM channel is required to be OPERABLE during spiral offload or reload when the fueled region includes only that SRM detector.~~

~~(c) Special movable detectors may be used in place of SRMs if connected to normal SRM circuits.~~

~~3.3 INSTRUMENTATION~~

~~3.3.2.1 Control Rod Block Instrumentation~~

~~LCO 3.3.2.1~~ ~~The control rod block instrumentation for each Function in Table 3.3.2.1-1 shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~According to Table 3.3.2.1-1.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One Rod Block Monitor (RBM) channel inoperable.~~	~~A.1~~ ~~Restore RBM channel to OPERABLE status.~~	~~24 hours~~
~~B.~~ ~~Required Action and associated Completion Time of Condition A not met.~~ ~~OR~~ ~~Two RBM channels inoperable.~~	~~B.1~~ ~~Place one RBM channel in trip.~~	~~1 hour~~
~~C.~~ ~~Rod Worth Minimizer (RWM) inoperable during reactor startup.~~	~~C.1~~ ~~Suspend control rod movement except by scram.~~ ~~OR~~	~~Immediately~~

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C.~~ ~~(continued)~~	~~C.2.1.1~~ ~~Verify ≥ 12 rods withdrawn.~~	~~Immediately~~
	~~OR~~	
	~~C.2.1.2~~ ~~Verify by administrative methods that startup with RWM inoperable has not been performed in the last calendar year.~~	~~Immediately~~
	~~AND~~	
	~~C.2.2~~ ~~Verify movement of control rods is in compliance with Banked Position Withdrawal Sequence (BPWS) by a second licensed operator or other qualified member of the technical staff.~~	~~During control rod movement~~
~~D.~~ ~~RWM inoperable during reactor shutdown.~~	~~D.1~~ ~~Verify movement of control rods is in compliance with BPWS by a second licensed operator or other qualified member of the technical staff.~~	~~During control rod movement~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~E. One or more Reactor Mode Switch – Shutdown Position channels inoperable.~~	~~E.1 Suspend control rod withdrawal.~~	~~Immediately~~
	~~AND~~	
	~~E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTES~~

1. ~~Refer to Table 3.3.2.1-1 to determine which SRs apply for each Control Rod Block Function.~~

2. ~~When an RBM channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains control rod block capability.~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.2.1.1~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.2.1.2~~	~~NOTE~~ ~~Not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2.~~ ~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.2.1.3~~	~~NOTE~~ ~~Not required to be performed until 1 hour after THERMAL POWER is ≤ 10 % RTP in MODE 1.~~ ~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.2.1.4~~	~~NOTE~~ ~~Neutron detectors are excluded.~~ ~~Verify the RBM:~~ ~~a. Low Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 29% and < 64% RTP.~~ ~~b. Intermediate Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 64% and < 84% RTP.~~ ~~c. High Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 84% RTP.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.2.1.5~~	~~NOTE~~ ~~Neutron detectors are excluded.~~ ~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.2.1.6~~	~~NOTE~~ ~~Not required to be performed until 1 hour after reactor mode switch is in the shutdown position.~~ ~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.2.1.7~~	~~Verify control rod sequences input to the RWM are in conformance with BPWS.~~	~~Prior to declaring RWM OPERABLE following loading of sequence into RWM~~

~~Table 3.3.2.1-1 (page 1 of 1)~~
~~Control Rod Block Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~1. Rod Block Monitor~~				
~~a. Low Power Range - Upscale~~	~~(a)~~	~~2~~	~~SR 3.3.2.1.1~~ ~~SR 3.3.2.1.4~~ ~~SR 3.3.2.1.5~~	~~≤ 115.5/125 divisions of full scale~~
~~b. Intermediate Power Range - Upscale~~	~~(b)~~	~~2~~	~~SR 3.3.2.1.1~~ ~~SR 3.3.2.1.4~~ ~~SR 3.3.2.1.5~~	~~≤ 109.7/125 divisions of full scale~~
~~c. High Power Range - Upscale~~	~~(c),(d)~~	~~2~~	~~SR 3.3.2.1.1~~ ~~SR 3.3.2.1.4~~ ~~SR 3.3.2.1.5~~	~~≤ 105.9/125 divisions of full scale~~
~~d. Inop~~	~~(d),(e)~~	~~2~~	~~SR 3.3.2.1.1~~	~~NA~~
~~e. Downscale~~	~~(d),(e)~~	~~2~~	~~SR 3.3.2.1.1~~ ~~SR 3.3.2.1.5~~	~~NA~~
~~f. Bypass Time Delay~~	~~(d),(e)~~	~~2~~	~~SR 3.3.2.1.1~~ ~~SR 3.3.2.1.5~~	~~≤ 2.0 seconds~~
~~2. Rod Worth Minimizer~~	~~1(f),2(f)~~	~~1~~	~~SR 3.3.2.1.2~~ ~~SR 3.3.2.1.3~~ ~~SR 3.3.2.1.7~~	~~NA~~
~~3. Reactor Mode Switch - Shutdown Position~~	~~(g)~~	~~2~~	~~SR 3.3.2.1.6~~	~~NA~~

~~(a) THERMAL POWER ≥ 30% and < 65% RTP and MCPR less than the limit specified in the COLR.~~

~~(b) THERMAL POWER ≥ 65% and < 85% RTP and MCPR less than the limit specified in the COLR.~~

~~(c) THERMAL POWER ≥ 85% and < 90% RTP and MCPR less than the limit specified in the COLR.~~

~~(d) THERMAL POWER ≥ 90% RTP and MCPR less than the limit specified in the COLR.~~

~~(e) THERMAL POWER ≥ 30% and < 90% RTP and MCPR less than the limit specified in the COLR.~~

~~(f) With THERMAL POWER ≤ 10% RTP, except during the reactor shutdown process if the coupling of each withdrawn control rod has been confirmed.~~

~~(g) Reactor mode switch in the shutdown position.~~

~~3.3 INSTRUMENTATION~~

~~3.3.3.1 Post Accident Monitoring (PAM) Instrumentation~~

~~LCO 3.3.3.1~~ ~~The PAM instrumentation for each Function in Table 3.3.3.1-1 shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each Function. For Function 6, Separate Condition entry is allowed for each penetration flow path.~~

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

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~		~~REQUIRED ACTION~~		~~COMPLETION TIME~~
~~D.~~	~~Required Action and associated Completion Time of Condition C not met.~~	~~D.1~~	~~Enter the Condition referenced in Table 3.3.3.1-1 for the channel.~~	~~Immediately~~
~~E.~~	~~As required by Required Action D.1 and referenced in Table 3.3.3.1-1.~~	~~E.~~	~~Be in MODE 3.~~	~~12 hours~~
~~F.~~	~~As required by Required Action D.1 and referenced in Table 3.3.3.1-1.~~	~~F.1~~	~~Initiate action in accordance with Specification 5.6.6.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTE~~
~~These SRs apply to each Function in Table 3.3.3.1-1.~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.3.1.1~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.3.1.2~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~Table 3.3.3.1-1 (page 1 of 1)~~
~~Post Accident Monitoring Instrumentation~~

~~FUNCTION~~	~~REQUIRED CHANNELS~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION D.1~~
~~1. Reactor Steam Dome Pressure~~	~~2~~	~~E~~
~~2. Reactor Vessel Water Level~~		
~~a. Wide Range~~	~~2~~	~~E~~
~~b. Fuel Zone~~	~~2~~	~~E~~
~~3. Suppression Pool Water Level~~	~~2~~	~~E~~
~~4. Drywell Pressure~~		
~~a. Narrow Range~~	~~2~~	~~E~~
~~b. Wide Range~~	~~2~~	~~E~~
~~5. Primary Containment Area Radiation~~		
~~a. Drywell~~	~~2~~	~~F~~
~~b. Suppression Chamber~~	~~2~~	~~F~~
~~6. PCIV Position~~	~~2 per penetration flow path (a)(b)~~	~~E~~

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

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

~~3.3 INSTRUMENTATION~~

~~3.3.3.2 Remote Shutdown System~~

~~LCO 3.3.3.2~~ ~~The Remote Shutdown System Functions shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each Function.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more required Functions inoperable.~~	~~A.1~~ ~~Restore required Function to OPERABLE status.~~	~~30 days~~
~~B.~~ ~~Required Action and associated Completion Time not met.~~	~~B.1~~ ~~Be in MODE 3.~~	~~12 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.3.2.1~~	~~Verify each required control circuit and transfer switch is capable of performing the intended function.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.3.2.2~~	~~Perform CHANNEL CALIBRATION for each required instrumentation channel.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.3 INSTRUMENTATION~~

~~3.3.4.1 End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation~~

~~LCO 3.3.4.1~~

~~a.~~ ~~Two channels per trip system for each EOC-RPT instrumentation Function listed below shall be OPERABLE:~~

~~1.~~ ~~Turbine Stop Valve (TSV) – Closure; and~~

~~2.~~ ~~Turbine Control Valve (TCV) Fast Closure, Trip Oil Pressure Low.~~

~~OR~~

~~b.~~ ~~LCO 3.2.2 "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for inoperable EOC-RPT as specified in the COLR are made applicable.~~

~~APPLICABILITY:~~ ~~THERMAL POWER ≥ 26% RTP.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each channel.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more channels inoperable.~~	~~A.1~~ ~~Restore channel to OPERABLE status.~~ ~~OR~~ ~~A.2~~ ~~NOTE~~ ~~Not applicable if inoperable channel is the result of an inoperable breaker.~~ ~~Place channel in trip.~~	~~72 hours~~ ~~72 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. One or more Functions with EOC-RPT trip capability not maintained.~~ ~~AND~~ ~~MCPR limit for inoperable EOC-RPT not made applicable.~~	~~B.1 Restore EOC-RPT trip capability.~~ ~~OR~~ ~~B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.~~	~~2 hours~~ ~~2 hours~~
~~C. Required Action and associated Completion Time not met.~~	~~C.1 Remove the associated recirculation pump from service.~~ ~~OR~~ ~~C.2 Reduce THERMAL POWER to < 26% RTP.~~	~~4 hours~~ ~~4 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTE~~

~~When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains EOC-RPT trip capability.~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.4.1.1~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.4.1.2~~	~~Perform CHANNEL CALIBRATION. The Allowable Values shall be:~~ ~~TSV — Closure: ≤ 10% closed; and~~ ~~TCV Fast Closure, Trip Oil Pressure — Low: ≥ 465 psig.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.4.1.3~~	~~Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.4.1.4~~	~~Verify TSV — Closure and TCV Fast Closure, Trip Oil Pressure — Low Functions are not bypassed when THERMAL POWER is ≥ 26 % RTP.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.4.1.5~~	~~Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.3 INSTRUMENTATION~~

~~3.3.4.2 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation~~

~~LCO 3.3.4.2~~ ~~Two channels in a trip system for each ATWS-RPT instrumentation Function listed below shall be OPERABLE:~~

~~a. Reactor Vessel Water Level — Low Low; and~~

~~b. Reactor Steam Dome Pressure — High.~~

~~APPLICABILITY:~~ ~~MODE 1.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each channel.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One Function with one or more channels inoperable.~~	~~A.1 Restore ATWS-RPT trip capability.~~	~~72 hours~~
~~B. Both Functions with ATWS-RPT trip capability not maintained.~~	~~B.1 Restore ATWS-RPT trip capability for one Function.~~	~~1 hour~~
~~C. Required Action and associated Completion Time not met.~~	~~C.1 Remove the associated recirculation pump from service.~~	~~8 hours~~
	~~OR~~	
	~~C.2 Be in MODE 2.~~	~~8 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.4.2.1~~	~~Perform CHANNEL CHECK on the Reactor Vessel Water Level — Low Low Function.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.4.2.2~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.4.2.3~~	~~Perform CHANNEL CALIBRATION. The Allowable Values shall be:~~ ~~a. Reactor Vessel Water Level — Low Low ≥ 112.65 inches; and~~ ~~b. Reactor Steam Dome Pressure — High: ≤ 1154.2 psig.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.4.2.4~~	~~Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.3 INSTRUMENTATION~~

~~3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation~~

~~LCO 3.3.5.1~~ ~~The ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~According to Table 3.3.5.1-1.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each channel.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more channels inoperable.~~	~~A.1~~ ~~Enter the Condition referenced in Table 3.3.5.1-1 for the channel.~~	~~Immediately~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1~~	~~B.1 ------NOTE------ Only applicable for Functions 1.a, 1.b, 2.a, and 2.b.~~	
	~~Declare supported feature(s) inoperable when redundant feature(s) ECCS initiation capability is inoperable.~~	~~1 hour from discovery of loss of initiation capability for feature(s) in two or more low pressure ECCS subsystems~~
	~~AND~~	
	~~B.2 ------NOTE------ Only applicable for Functions 3.a and 3.b.~~	
	~~Declare High Pressure Coolant Injection (HPCI) System inoperable.~~	~~1 hour from discovery of loss of HPCI initiation capability~~
	~~AND~~	
	~~B.3 Place channel in trip.~~	~~24 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.~~	~~C.1 ——NOTE—— Only applicable for Functions 1.c, 1.e, 2.c and 2.e.~~ ~~Declare supported feature(s) inoperable.~~	~~1 hour from discovery of loss of initiation capability for two or more low pressure ECCS subsystems~~
	~~AND~~	
	~~C.2 ——NOTE—— Only applicable for Functions 2.g, 2.h, 2.i, and 2.j.~~ ~~Declare Low Pressure Coolant Injection (LPCI) subsystem inoperable.~~	~~1 hour from discovery of loss of Loop Selection capability~~
	~~AND~~	
	~~C.3 Restore channel to OPERABLE status.~~	~~24 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~D.~~ ~~As required by Required Action A.1 and referenced in Table 3.3.5.1-1.~~	~~D.1~~ ~~NOTE~~ ~~Only applicable if HPCI pump suction is not aligned to the suppression pool.~~ ~~Declare HPCI System inoperable.~~	~~1 hour from discovery of loss of HPCI suction transfer capability~~
	~~AND~~	
	~~D.2.1 Place channel in trip.~~	~~24 hours~~
	~~OR~~	
	~~D.2.2 Align the HPCI pump suction to the suppression pool.~~	~~24 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.~~	~~E.1 ------NOTE------ Only applicable for Functions 1.d and 2.f.~~ ~~Declare supported feature(s) inoperable.~~	~~1 hour from discovery of loss of initiation capability for two or more minimum flow valves in the low pressure ECCS subsystems~~
	~~AND~~	
	~~E.2 Restore channel to OPERABLE status.~~	~~7 days~~
~~F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.~~	~~F.1 Restore channel to OPERABLE status.~~	~~1 hour~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.~~	~~G.1 Declare Automatic Depressurization System (ADS) valves inoperable.~~	~~1 hour from discovery of loss of ADS initiation capability in both trip logics~~
	~~AND~~	
	~~G.2 Place channel in trip.~~	~~96 hours from discovery of inoperable channel concurrent with HPCI or Reactor Core Isolation Cooling (RCIC) inoperable~~ ~~AND~~ ~~8 days~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~H.~~ ~~As required by Required Action A.1 and referenced in Table 3.3.5.1-1.~~	~~H.1~~ ~~Declare ADS valves inoperable.~~	~~1 hour from discovery of loss of ADS initiation capability in both trip logics~~
	~~AND~~	
	~~H.2~~ ~~Restore channel to OEPRABLE status.~~	~~96 hours from discovery of inoperable channel concurrent with HPCI or RCIC inoperable~~ ~~AND~~ ~~8 days~~
~~I.~~ ~~Required Action and associated Completion Time of Condition B, C, D, E, F, G, or H not met.~~	~~I.1~~ ~~Declare associated supported feature(s) inoperable.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTES~~

1. ~~Refer to Table 3.3.5.1-1 to determine which SRs apply for each ECCS Function.~~

2. ~~When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 1.d, 2.f, 3.c, 3.d, 3.e, and 3.f; and (b) for up to 6 hours for Functions other than 1.d, 2.f, 3.c, 3.d, 3.e, and 3.f provided the associated Function (or the redundant Function for Functions 4 and 5) maintains ECCS initiation or loop selection capability.~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.5.1.1~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.1.2~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.1.3~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.1.4~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.1.5~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.5.1.6~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.1.7~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.1.8~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.1.9~~	~~Perform LOGIC SYSTEM FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~Table 3.3.5.1-1 (page 1 of 5)~~
~~Emergency Core Cooling System Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER FUNCTION~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION A.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~1. Core Spray System~~					
~~a. Reactor Vessel Water Level — Low Low Low~~	~~1,2,3,~~	~~4~~[(a)]	~~B~~	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 38.3 inches~~
~~b. Drywell Pressure — High~~	~~1,2,3~~	~~4~~[(a)]	~~B~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≤ 2.19 psig~~
~~c. Reactor Steam Dome Pressure — Low (Injection Permissive)~~	~~1,2,3~~	~~4~~	~~C~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 363.3 psig and ≤ 485.1 psig~~
~~d. Core Spray Pump Discharge Flow — Low (Bypass)~~	~~1,2,3~~	~~1 per pump~~	~~E~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 256.6 gpm and ≤ 2382.1 gpm~~
~~e. Core Spray Pump Start Time Delay Relay~~	~~1,2,3~~	~~1 per pump~~	~~C~~	~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 2.6 seconds and ≤ 6.8 seconds~~
~~f. 4.16 kV Emergency Bus Sequential Loading Relay~~	~~1,2,3~~	~~1 per pump~~	~~F~~	~~SR 3.3.5.1.5~~ ~~SR 3.3.5.1.6~~ ~~SR 3.3.5.1.9~~	~~≤ 3500 V~~
~~2. Low Pressure Coolant Injection (LPCI) System~~					
~~a. Reactor Vessel Water Level Low Low Low~~	~~1,2,3~~	~~4~~	~~B~~	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 38.3 inches~~
~~b. Drywell Pressure — High~~	~~1,2,3~~	~~4~~	~~B~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≤ 2.19 psig~~

~~(continued)~~

~~(a) Also required to initiate the associated Diesel Generator (DG).~~

~~Table 3.3.5.1-1 (page 2 of 5)~~
~~Emergency Core Cooling System Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER FUNCTION~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION A.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~2. LPCI System (continued)~~					
~~c. Reactor Steam Dome Pressure — Low (Injection Permissive)~~	~~1,2,3~~	~~4~~	~~C~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 363.3 psig and ≤ 485.1 psig~~
~~d. Reactor Vessel Shroud Level — Low~~	~~1,2,3~~	~~4~~	~~B~~	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.2~~ ~~SR 3.3.5.1.4~~ ~~SR 3.3.5.1.9~~	~~≥ 40.89 inches~~
~~e. Low Pressure Coolant Injection Pump Start - Time Delay Relay~~	~~1,2,3~~	~~1 per pump~~	~~C~~	~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	
~~Pumps A & B~~					~~≥ 8.8 seconds and ≤ 11.2 seconds~~
~~Pumps C & D~~					~~≥ 13.8 seconds and ≤ 33.5 seconds~~
~~f. Low Pressure Coolant Injection Pump Discharge Flow — Low (Bypass)~~	~~1,2,3~~	~~1 per loop~~	~~E~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 471.8 gpm and ≤ 3676.6 gpm~~
~~g. LPCI Loop Select-Reactor Vessel Water Level - Low-Low~~	~~1,2,3~~	~~4~~	~~C~~	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.2~~ ~~SR 3.3.5.1.6~~ ~~SR 3.3.5.1.9~~	~~≥ 112.65 inches~~
~~h. LPCI Loop Select — Reactor Steam Dome Pressure - Low~~	~~1,2,3~~	~~4~~	~~C~~	~~SR 3.3.5.1.2~~ ~~SR 3.3.5.1.4~~ ~~SR 3.3.5.1.9~~	~~≥ 887 psig~~

~~(continued)~~

Table 3.3.5.1-1 (page 3 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
i. LPCI Loop Select – Recirculation Pump Differential Pressure	1,2,3	4 per pump	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.8 SR 3.3.5.1.9	≤ 7.8 psid
j. LPCI Loop Select – Recirculation Riser Differential Pressure	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.9	≥ 0.13 psid and ≤ 2.07 psid
k. 4.16 kV Emergency Bus Sequential Loading Relay	1,2,3	2	F	SR 3.3.5.1.5 SR 3.3.5.1.6 SR 3.3.5.1.9	≤ 3500 V
3. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level – Low Low	1, 2(b), 3(b)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.3 SR 3.3.5.1.6 SR 3.3.5.1.9	≥ 112.65 inches
b. Drywell Pressure – High	1, 2(b), 3(b)	4	B	SR 3.3.5.1.3 SR 3.3.5.1.8 SR 3.3.5.1.9	≤ 2.19 psig
c. Reactor Vessel Water Level – High	1, 2(b), 3(b)	2	C	SR 3.3.5.1.1 SR 3.3.5.1.3 SR 3.3.5.1.6 SR 3.3.5.1.9	≤ 214.8 inches
d. Condensate Storage Tank Level – Low	1, 2(b), 3(b)	2	D	SR 3.3.5.1.3 SR 3.3.5.1.8 SR 3.3.5.1.9	≥ 11.6 inches

(continued)

(b) With reactor steam dome pressure > 150 psig.

~~Table 3.3.5.1-1 (page 4 of 5)~~
~~Emergency Core Cooling System Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER FUNCTION~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION A.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~3. HPCI System (continued)~~					
~~e. Suppression Pool Water Level – High~~	~~1, 2(b), 3(b)~~	~~2~~	~~D~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≤ 5.9 inches~~
~~f. High Pressure Coolant Injection Pump Discharge Flow – Low (Bypass)~~	~~1, 2(b), 3(b)~~	~~1~~	~~E~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 264.2 gpm and ≤ 2025.1 gpm~~
~~4. Automatic Depressurization System (ADS) Trip Logic A~~					
~~a. Reactor Vessel Water Level – Low Low Low~~	~~1, 2(c), 3(c)~~	~~2~~	~~G~~	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 38.3 inches~~
~~b. Automatic Depressurization System Timer~~	~~1, 2(c), 3(c)~~	~~1~~	~~H~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≤ 125 seconds~~
~~c. Reactor Vessel Water Level – Low (Confirmatory)~~	~~1, 2(c), 3(c)~~	~~1~~	~~G~~	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 166.1 inches~~
~~d. Core Spray Pump Discharge Pressure – High~~	~~1, 2(c), 3(c)~~	~~2~~	~~H~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 114.2 psig and ≤ 177.0 psig~~
~~e. Low Pressure Coolant Injection Pump Discharge Pressure – High~~	~~1, 2(c), 3(c)~~	~~4~~	~~H~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 103.8 psig and ≤ 147.0 psig~~

~~(continued)~~

~~(b) With reactor steam dome pressure > 150 psig.~~

~~(c) With reactor steam dome pressure > 100 psig.~~

~~Table 3.3.5.1-1 (page 5 of 5)~~
~~Emergency Core Cooling System Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER FUNCTION~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION A.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~5. ADS Trip Logic B~~					
~~a. Reactor Vessel Water Level - Low Low Low~~	~~1, 2(c), 3(c)~~	~~2~~	~~G~~	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 38.3 inches~~
~~b. Automatic Depressurization System Timer~~	~~1, 2(c), 3(c)~~	~~1~~	~~H~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≤ 125 seconds~~
~~c. Reactor Vessel Water Level - Low (Confirmatory)~~	~~1, 2(c), 3(c)~~	~~1~~	~~G~~	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 166.1 inches~~
~~d. Core Spray Pump Discharge Pressure - High~~	~~1, 2(c), 3(c)~~	~~2~~	~~H~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 114.2 psig and ≤ 177.0 psig~~
~~e. Low Pressure Coolant Injection Pump Discharge Pressure - High~~	~~1, 2(c), 3(c)~~	~~4~~	~~H~~	~~SR 3.3.5.1.3~~ ~~SR 3.3.5.1.8~~ ~~SR 3.3.5.1.9~~	~~≥ 103.8 psig and ≤ 147.0 psig~~

~~(c) With reactor steam dome pressure > 100 psig.~~

~~3.3 INSTRUMENTATION~~

~~3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation~~

~~LCO 3.3.5.2~~ ~~The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~According to Table 3.3.5.2-1~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each channel.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more channels inoperable.~~	~~A.1~~ ~~Enter the Condition referenced in Table 3.3.5.2-1 for the channel.~~	~~Immediately~~
~~B.~~ ~~As required by Required Action A.1 and referenced in Table 3.3.5.2-1.~~	~~B.1~~ ~~Declare associated penetration flow path(s) incapable of automatic isolation.~~	~~Immediately~~
	~~AND~~	
	~~B.2~~ ~~Calculate DRAIN TIME.~~	~~Immediately~~
~~C.~~ ~~As required by Required Action A.1 and referenced in Table 3.3.5.2-1.~~	~~C.1~~ ~~Place Channel in trip.~~	~~1 hour~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.~~	~~D.1 Restore channel to OPERABLE status.~~	~~24 hours~~
~~E. Required Action and associated Completion Time of Condition C or D not met.~~	~~E.1 Declare associated ECCS injection/spray subsystem inoperable.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTES~~

~~Refer to Table 3.3.5.2-1 to determine which SRs apply for each ECCS Function.~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.5.2.1~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.2.2~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~Table 3.3.5.2-1 (page 1 of 1)~~
~~RPV Water Inventory Control Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER FUNCTION~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION A.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~1. Core Spray System~~					
~~a. Reactor Steam Dome Pressure – Low (Injection Permissive)~~	~~4, 5~~	~~4~~	~~C~~	~~SR 3.3.5.2.2~~	~~≤ 485.1 psig~~
~~b. Core Spray Pump Discharge Flow – Low (Bypass)~~	~~4, 5~~	~~1 per Pump[(a)]~~	~~D~~	~~SR 3.3.5.2.2~~	~~≥ 256.6 gpm and ≤ 2382.1 gpm~~
~~2. Low Pressure Coolant Injection (LPCI) System~~					
~~a. Reactor Steam Dome Pressure – Low (Injection Permissive)~~	~~4, 5~~	~~4~~	~~C~~	~~SR 3.3.5.2.2~~	~~≤ 485.1 psig~~
~~b. Low Pressure Coolant Injection Pump Discharge Flow – Low (Bypass)~~	~~4, 5~~	~~1 per loop[(a)]~~	~~D~~	~~SR 3.3.5.2.2~~	~~≥ 471.8 gpm and ≤ 3676.6 gpm~~
~~3. RHR System Isolation~~					
~~a. Reactor Vessel Water Level – Low~~	~~(b)~~	~~2 in one trip system~~	~~B~~	~~SR 3.3.5.2.1~~ ~~SR 3.3.5.2.2~~	~~≥ 165.6 inches~~
~~4. Reactor Water Cleanup (RWCU) System Isolation~~					
~~a. Reactor Vessel Water Level – Low Low~~	~~(b)~~	~~2 in one trip system~~	~~B~~	~~SR 3.3.5.2.1~~ ~~SR 3.3.5.2.2~~	~~≥ 112.65 inches~~

~~(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "Reactor Pressure Vessel Water Inventory Control."~~
~~(b) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.~~

~~3.3 INSTRUMENTATION~~

~~3.3.5.3 Reactor Core Isolation Cooling (RCIC) System Instrumentation~~

~~LCO 3.3.5.3~~ ~~The RCIC System instrumentation for each Function in Table 3.3.5.3-1 shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODE 1,~~
~~MODES 2 and 3 with reactor steam dome pressure > 150 psig.~~

~~ACTIONS~~

~~NOTE~~
~~Separate Condition entry is allowed for each channel.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more channels inoperable.~~	~~A.1~~ ~~Enter the Condition referenced in Table 3.3.5.3-1 for the channel.~~	~~Immediately~~
~~B.~~ ~~As required by Required Action A.1 and referenced in Table 3.3.5.3-1.~~	~~B.1~~ ~~Declare RCIC System inoperable.~~	~~1 hour from discovery of loss of RCIC initiation capability~~
	~~AND~~	
	~~B.2~~ ~~Place channel in trip.~~	~~24 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.~~	~~C.1 Restore channel to OPERABLE status.~~	~~24 hours~~
~~D. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.~~	~~D.1 ------NOTE------ Only applicable if RCIC pump suction is not aligned to the suppression pool.~~ ~~Declare RCIC System inoperable.~~	 ~~1 hour from discovery of loss of RCIC suction transfer capability~~
	~~AND~~	
	~~D.2.1 Place channel in trip.~~	~~24 hours~~
	~~OR~~	
	~~D.2.2 Align RCIC pump suction to the suppression pool.~~	~~24 hours~~
~~E. Required Action and associated Completion Time of Condition B, C, or D not met.~~	~~E.1 Declare RCIC System inoperable.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTES~~

1. ~~Refer to Table 3.3.5.3-1 to determine which SRs apply for each RCIC Function.~~

2. ~~When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2 and 3; and (b) for up to 6 hours for Function 1 provided the associated Function maintains RCIC initiation capability.~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.5.3.1~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.3.2~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.3.3~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.3.4~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.5.3.5~~	~~Perform LOGIC SYSTEM FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~Table 3.3.5.3-1 (page 1 of 1)~~
~~Reactor Core Isolation Cooling System Instrumentation~~

~~FUNCTION~~	~~REQUIRED CHANNELS PER FUNCTION~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION A.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~1. Reactor Vessel Water Level — Low Low~~	~~4~~	~~B~~	~~SR 3.3.5.3.1~~ ~~SR 3.3.5.3.2~~ ~~SR 3.3.5.3.3~~ ~~SR 3.3.5.3.5~~	~~≥ 112.65 inches~~
~~2. Reactor Vessel Water Level - High~~	~~2~~	~~C~~	~~SR 3.3.5.3.1~~ ~~SR 3.3.5.3.2~~ ~~SR 3.3.5.3.3~~ ~~SR 3.3.5.3.5~~	~~≤ 214.8 inches~~
~~3. Condensate Storage Tank Level - Low~~	~~2~~	~~D~~	~~SR 3.3.5.3.2~~ ~~SR 3.3.5.3.4~~ ~~SR 3.3.5.3.5~~	~~≥ 11.6 inches~~

~~3.3 INSTRUMENTATION~~

~~3.3.6.1 Primary Containment Isolation Instrumentation~~

~~LCO 3.3.6.1~~ ~~The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~According to Table 3.3.6.1-1.~~

~~ACTIONS~~

~~NOTE~~
~~Separate Condition entry is allowed for each channel.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more required channels inoperable.~~	~~A.1~~ ~~Place channel in trip.~~	~~12 hours for Functions 2.a, 2.b, 6.b, and 6.c~~ ~~AND~~ ~~24 hours for Functions other than Functions 2.a, 2.b, and 6.b, and 6.c~~
	~~AND~~	
	~~A.2~~ ~~NOTE~~ ~~Only applicable for Function 7.a.~~ ~~Inhibit containment spray system.~~	~~24 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. One or more automatic Functions with isolation capability not maintained.~~	~~B.1 Restore isolation capability.~~	~~1 hour~~
~~C. Required Action and associated Completion Time of Condition A or B not met.~~	~~C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.~~	~~Immediately~~
~~D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.~~	~~D.1 Isolate associated main steam line (MSL).~~	~~12 hours~~
	~~OR~~	
	~~D.2.1 Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~D.2.2 Be in MODE 4.~~	~~36 hours~~
~~E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.~~	~~E.1 Be in MODE 2.~~	~~8 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.~~	~~F.1 Isolate the affected penetration flow path(s).~~	~~1 hour~~
~~G. [Deleted]~~		
~~H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.~~ ~~OR~~ ~~Required Action and associated Completion Time for Condition F not met.~~	~~H.1 Be in MODE 3.~~ ~~AND~~ ~~H.2 Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~
~~I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.~~	~~I.1 Declare Standby Liquid Control (SLC) System inoperable.~~ ~~OR~~ ~~I.2 Isolate the Reactor Water Cleanup System.~~	~~1 hour~~ ~~1 hour~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~J.~~ ~~As required by Required Action C.1 and referenced in Table 3.3.6.1-1.~~	~~J.1~~ ~~Initiate action to restore channel to OPERABLE status.~~	~~Immediately~~
	~~OR~~	
	~~J.2~~ ~~Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System.~~	~~Immediately~~
~~K.~~ ~~As required by Required Action C.1 and referenced in Table 3.3.6.1-1.~~	~~K.1~~ ~~-----NOTE-----~~ ~~Only applicable if inoperable channel is not in trip.~~ ~~----------~~	
	~~Declare associated Suppression Pool Cooling/Spray subsystem(s) inoperable.~~	~~Immediately~~
	~~OR~~	
	~~K.2~~ ~~-----NOTE-----~~ ~~Only applicable if inoperable channel is in trip.~~ ~~----------~~	
	~~Declare Primary Containment inoperable.~~	~~Immediately~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~L. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.~~	~~L.1 Isolate the primary containment vent and purge penetration flow paths.~~	~~1 hour~~
	~~OR~~	
	~~L.2 Establish administrative control of the primary containment vent and purge valves using continuous monitoring of alternate instrumentation.~~	~~1 hour~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTES~~

1. ~~Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.~~

2. ~~When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Function 5.a; and (b) for up to 6 hours for Functions other than 5.a provided the associated Function maintains isolation capability.~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.6.1.1~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.1.2~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.1.3~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.1.4~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.1.5~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.6.1.6~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.1.7~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.1.8~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.1.9~~	~~Perform LOGIC SYSTEM FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~Table 3.3.6.1-1 (page 1 of 5)~~
~~Primary Containment Isolation Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER TRIP SYSTEM~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION C.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~1. Main Steam Line Isolation~~					
~~a. Reactor Vessel Water Level — Low Low Low~~	~~1,2,3~~	~~2~~	~~D~~	~~SR 3.3.6.1.1~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≥ 38.3 inches~~
~~b. Main Steam Line Pressure — Low~~	~~1~~	~~2~~	~~E~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.5~~ ~~SR 3.3.6.1.9~~	~~≥ 821 psig~~
~~c. Main Steam Line Flow — High~~	~~1,2,3~~	~~2 per MSL~~	~~D~~	~~SR 3.3.6.1.1~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.5~~ ~~SR 3.3.6.1.9~~	~~≤ 138% rated steam flow~~
~~d. Condenser Backpressure — High~~	~~1, 2[(a)], 3[(a)]~~	~~2~~	~~D~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≥ 7.2 inches Hg vacuum~~
~~e. Main Steam Line Tunnel Temperature — High~~	~~1,2,3~~	~~4~~	~~D~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.7~~ ~~SR 3.3.6.1.9~~	~~≤ 205.1°F~~
~~f. Turbine Building Temperature — High~~	~~1,2,3~~	~~4~~	~~D~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.7~~ ~~SR 3.3.6.1.9~~	~~≤ 205.1°F~~

~~(continued)~~

~~(a) When any turbine stop valve is greater than 90% open or when the key locked bypass switch is in the NORM Position.~~

~~Table 3.3.6.1-1 (page 2 of 5)~~
~~Primary Containment Isolation Instrumentation~~

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.4 SR 3.3.6.1.8 SR 3.3.6.1.9	≥ 165.6 inches
b. Drywell Pressure - High	1,2,3	2	H	SR 3.3.6.1.4 SR 3.3.6.1.8 SR 3.3.6.1.9	≤ 2.2 psig
c. Offgas Vent Stack - High Radiation	1(c), 2(c), 3(c)	1	L	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.8 SR 3.3.6.1.9	(b)
d. Reactor Building Exhaust Shaft - High Radiation	1,2,3	1	H	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.8 SR 3.3.6.1.9	≤ 12.8 mR/hr
e. Refueling Floor Exhaust Duct - High Radiation	1,2,3	1	H	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.8 SR 3.3.6.1.9	≤ 10.6 mR/hr
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.4 SR 3.3.6.1.8 SR 3.3.6.1.9	≤ 409 inches (inboard) ≤ 110 inches (outboard)

~~(continued)~~

~~(b) Allowable value is determined in accordance with the ODAM.~~

~~(c) During venting or purging of primary containment.~~

~~Table 3.3.6.1-1 (page 3 of 5)~~
~~Primary Containment Isolation Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER TRIP SYSTEM~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION C.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~3. HPCI System Isolation (continued)~~					
~~b. HPCI Steam Supply Line Pressure — Low~~	~~1,2,3~~	~~2~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≥ 50 psig and ≤ 147.1 psig~~
~~c. HPCI Turbine Exhaust Diaphragm Pressure - High~~	~~1,2,3~~	~~2~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≥ 2.5 psig~~
~~d. Drywell Pressure - High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 2.2 psig~~
~~e. Suppression Pool Area Ambient Temperature — High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 153.3°F~~
~~f. HPCI Leak Detection Time Delay~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~N/A~~
~~g. Suppression Pool Area Ventilation Differential Temperature - High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 51.5°F~~
~~h. HPCI Equipment Room Temperature - High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 178.3°F~~
~~i. HPCI Room Ventilation Differential Temperature - High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 51.5°F~~

~~(continued)~~

~~Table 3.3.6.1-1 (page 4 of 5)~~
~~Primary Containment Isolation Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER TRIP SYSTEM~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION C.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~4. Reactor Core Isolation Cooling (RCIC) System Isolation~~					
~~a. RCIC Steam Line Flow – High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 164 inches (inboard)~~ ~~≤ 159 inches (outboard)~~
~~b. RCIC Steam Supply Line Pressure – Low~~	~~1,2,3~~	~~2~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≥ 50.3 psig~~
~~c. RCIC Turbine Exhaust Diaphragm Pressure – High~~	~~1,2,3~~	~~2~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.6~~ ~~SR 3.3.6.1.9~~	~~≥ 3.3 psig~~
~~d. Drywell Pressure – High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 2.2 psig~~
~~e. RCIC Suppression Pool Area Ambient Temperature – High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 153.3°F~~
~~f. RCIC Leak Detection Time Delay~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~N/A~~
~~g. RCIC Suppression Pool Area Ventilation Differential Temperature – High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 51.5°F~~
~~h. RCIC Equipment Room Temperature – High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 178.3°F~~
~~i. RCIC Room Ventilation Differential Temperature – High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 51.5°F~~

~~(continued)~~

~~Table 3.3.6.1-1 (page 5 of 5)~~
~~Primary Containment Isolation Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER TRIP SYSTEM~~	~~CONDITIONS REFERENCED FROM REQUIRED ACTION C.1~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~5. Reactor Water Cleanup (RWCU) System Isolation~~					
~~a. Differential Flow - High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 59 gpm~~
~~b. Area Temperature - High~~	~~1,2,3~~	~~1[(d)]~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 133.3°F~~
~~c. Area Ventilation Differential Temperature - High~~	~~1,2,3~~	~~1[(d)]~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	
~~RWCU Pump Room~~ ~~RWCU Pump A Room~~ ~~RWCU Pump B Room~~ ~~RWCU Heat Exch. Room~~					~~≤ 22.5°F~~ ~~≤ 23.5°F~~ ~~≤ 34.5°F~~ ~~≤ 51.5°F~~
~~d. SLC System Initiation~~	~~1,2~~	~~1[(e)]~~	~~I~~	~~SR 3.3.6.1.9~~	~~NA~~
~~e. Reactor Vessel Water Level - Low Low~~	~~1,2,3~~	~~2~~	~~F~~	~~SR 3.3.6.1.1~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.7~~ ~~SR 3.3.6.1.9~~	~~≥ 112.65 inches~~
~~f. Area Near TIP Room Ambient Temperature - High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.2~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 115.7°F~~
~~6. Shutdown Cooling System Isolation~~					
~~a. Reactor Steam Dome Pressure - High~~	~~1,2,3~~	~~1~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.5~~ ~~SR 3.3.6.1.9~~	~~≤ 152.7 psig~~
~~b. Reactor Vessel Water Level - Low~~	~~3~~	~~2~~	~~J~~	~~SR 3.3.6.1.1~~ ~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≥ 165.6 inches~~
~~c. Drywell Pressure - High~~	~~1,2,3~~	~~2~~	~~F~~	~~SR 3.3.6.1.4~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≤ 2.2 psig~~
~~7. Containment Cooling System Isolation~~					
~~a. Containment Pressure - High~~	~~1,2,3~~	~~4~~	~~K~~	~~SR 3.3.6.1.3~~ ~~SR 3.3.6.1.8~~ ~~SR 3.3.6.1.9~~	~~≥ 1.25 psig~~

~~(d) Each Trip System must have either an OPERABLE Function 5.b or an OPERABLE Function 5.c channel in both the RWCU pump area and in the RWCU heat exchanger area.~~

~~(e) SLC System Initiation only inputs into one of the two trip systems.~~

~~3.3 INSTRUMENTATION~~

~~3.3.6.2 Secondary Containment Isolation Instrumentation~~

~~LCO 3.3.6.2~~ ~~The secondary containment isolation instrumentation for each Function in Table 3.3.6.2-1 shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~According to Table 3.3.6.2-1.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each channel.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more channels inoperable.~~	~~A.1~~ ~~Place channel in trip.~~	~~12 hours for Functions 1 and 2~~ ~~AND~~ ~~24 hours for Functions 3 and 4~~
~~B.~~ ~~One or more Functions with secondary containment isolation capability not maintained.~~	~~B.1~~ ~~Restore secondary containment isolation capability.~~	~~1 hour~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. Required Action and associated Completion Time of Condition A or B not met.~~	~~C.1.1 Isolate secondary containment.~~	~~1 hour~~
	~~OR~~	
	~~C.1.2 Declare associated Secondary Containment Isolation Valves/Dampers (SCIV/Ds) inoperable.~~	~~1 hour~~
	~~AND~~	
	~~C.2.1 Place the associated Standby Gas Treatment (SBGT) subsystem(s) in operation.~~	~~1 hour~~
	~~OR~~	
	~~C.2.2 Declare associated SBGT subsystem(s) inoperable.~~	~~1 hour~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTES~~

~~1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.~~

~~2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains secondary containment isolation capability.~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.3.6.2.1~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.2.2~~	~~Perform CHANNEL CHECK.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.2.3~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.2.4~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.2.5~~	~~Perform LOGIC SYSTEM FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~Table 3.3.6.2-1 (page 1 of 1)~~
~~Secondary Containment Isolation Instrumentation~~

~~FUNCTION~~	~~APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS~~	~~REQUIRED CHANNELS PER TRIP SYSTEM~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~1. Reactor Vessel Water Level – Low~~	~~1,2,3~~	~~2~~	~~SR 3.3.6.2.1~~ ~~SR 3.3.6.2.3~~ ~~SR 3.3.6.2.4~~ ~~SR 3.3.6.2.5~~	~~≥ 165.6 inches~~
~~2. Drywell Pressure – High~~	~~1,2,3~~	~~2~~	~~SR 3.3.6.2.3~~ ~~SR 3.3.6.2.4~~ ~~SR 3.3.6.2.5~~	~~≤ 2.2 psig~~
~~3. Reactor Building Exhaust Shaft – High Radiation~~	~~1,2,3~~	~~1~~	~~SR 3.3.6.2.2~~ ~~SR 3.3.6.2.3~~ ~~SR 3.3.6.2.4~~ ~~SR 3.3.6.2.5~~	~~≤ 12.8 mR/hr~~
~~4. Refueling Floor Exhaust Duct – High Radiation~~	~~1,2,3~~	~~1~~	~~SR 3.3.6.2.2~~ ~~SR 3.3.6.2.3~~ ~~SR 3.3.6.2.4~~ ~~SR 3.3.6.2.5~~	~~≤ 10.6 mR/hr~~

~~3.3 INSTRUMENTATION~~

~~3.3.6.3 Low Low Set (LLS) Instrumentation~~

~~LCO 3.3.6.3~~ ~~The LLS valve instrumentation for each Function in Table 3.3.6.3-1 shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One LLS valve inoperable due to inoperable channel(s).~~	~~A.1~~ ~~Restore channel(s) to OPERABLE status.~~	~~24 hours~~
~~B.~~ ~~One or more Safety Relief Valves (SRVs) with one Function 3 channel inoperable.~~	~~B.1~~ ~~Restore channel(s) to OPERABLE status.~~	~~Prior to entering MODE 2 or 3 from MODE 4~~
~~C.~~ ~~NOTE~~ ~~Separate Condition entry is allowed for each SRV.~~ ~~One or more SRVs with two or more Function 3 channels inoperable.~~	~~C.1~~ ~~Restore at least two channels per SRV to OPERABLE status.~~	~~14 days~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~		~~REQUIRED ACTION~~		~~COMPLETION TIME~~
~~D.~~	~~Required Action and associated Completion Time of Condition A, B, or C not met.~~ ~~OR~~ ~~Both LLS valves inoperable due to inoperable channels.~~	~~D.1~~	~~Declare the associated LLS valve(s) inoperable.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~NOTES~~

1. ~~Refer to Table 3.3.6.3-1 to determine which SRs apply for each Function.~~

2. ~~When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains LLS initiation capability.~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.6.3.1~~	~~Perform CHANNEL FUNCTIONAL TEST for portion of the channel outside primary containment.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.3.2~~	~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control~~ Program

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.6.3.3~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.3.4~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.3.5~~	~~Perform CHANNEL CALIBRATION.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.6.3.6~~	~~Perform LOGIC SYSTEM FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~Table 3.3.6.3-1 (page 1 of 1)~~
~~Low-Low Set Instrumentation~~

~~FUNCTION~~	~~REQUIRED CHANNELS PER FUNCTION~~	~~SURVEILLANCE REQUIREMENTS~~	~~ALLOWABLE VALUE~~
~~1. Reactor Vessel Steam Dome Pressure - High~~	~~1 per LLS valve~~	~~SR 3.3.6.3.2~~ ~~SR 3.3.6.3.3~~ ~~SR 3.3.6.3.6~~	~~≤ 1069.21 psig~~
~~2. Low-Low Set Pressure Setpoints~~	~~2 per LLS valve~~	~~SR 3.3.6.3.2~~ ~~SR 3.3.6.3.4~~ ~~SR 3.3.6.3.6~~	~~Low:~~ ~~Open ≥ 1014 psig and ≤ 1045 psig~~ ~~Close ≥ 893.4 psig and ≤ 925 psig~~ ~~High:~~ ~~Open ≥ 1019 psig and ≤ 1050 psig~~ ~~Close ≥ 893.4 psig and ≤ 930 psig~~
~~3. Tailpipe High Pressure~~	~~3 per SRV~~	~~SR 3.3.6.3.1~~ ~~SR 3.3.6.3.5~~ ~~SR 3.3.6.3.6~~	~~≤ 99 psig~~

3.3 INSTRUMENTATION

3.3.7.1 Standby Filter Unit (SFU) System Instrumentation

LCO 3.3.7.1 Two channels of the Control Building Intake Area Radiation – High Function shall be OPERABLE.

APPLICABILITY: ~~MODES 1, 2, and 3,~~
During movement of irradiated fuel assemblies in the secondary containment~~,~~
~~During CORE ALTERATIONS~~.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both channels inoperable.	A.1 Declare associated SFU subsystem(s) inoperable.	1 hour
	<u>OR</u>	
	A.2 Place associated SFU subsystem(s) in the isolation mode.	1 hour

SURVEILLANCE REQUIREMENTS

---NOTE---
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other channel is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be $\leq$ 5 mR/hr.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Function 1 or 3 channels inoperable.	A.1 Place channel in trip.	1 hour
B. One or more Function 2 channels inoperable.	B.1 Declare associated Diesel Generator (DG) inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in one or both divisions
	AND	
	B.2 Place channel in trip.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.8.1-1 to determine which SRs apply for each LOP Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 2 hours provided the associated Function maintains DG initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.8.1-1 (page 1 of 1)
Loss of Power Instrumentation

FUNCTION	REQUIRED CHANNELS PER BUS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)			
a. Bus Undervoltage	1	SR 3.3.8.1.2 SR 3.3.8.1.4 SR 3.3.8.1.5	≥ 595 V and ≤ 2275 V
2. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)			
a. Bus Undervoltage	4	SR 3.3.8.1.1 SR 3.3.8.1.3 SR 3.3.8.1.5	≥ 3780 V and ≤3822 V
b. Time Delay	4	SR 3.3.8.1.1 SR 3.3.8.1.3 SR 3.3.8.1.5	≥ 7.92 seconds and ≤ 8.5 seconds
3. 4.16 kV Emergency Transformer Supply Undervoltage	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.5	≥ 2450 V

3.3 INSTRUMENTATION

DELETED

3.3.8.2 ~~Reactor Protection System (RPS) Electric Power Monitoring~~

~~LCO 3.3.8.2~~ ~~Two RPS Electrical Protection Assemblies (EPAs) shall be OPERABLE for each inservice RPS motor generator set or alternate power supply.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2,~~
~~MODES 3, 4 and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or both inservice power supplies with one EPA inoperable.~~	~~A.1~~ ~~Remove associated inservice power supply(s) from service.~~	~~72 hours~~
~~B.~~ ~~One or both inservice power supplies with both EPAs inoperable.~~	~~B.1~~ ~~Remove associated inservice power supply(s) from service.~~	~~1 hour~~
~~C.~~ ~~Required Action and associated Completion Time of Condition A or B not met in MODE 1 or 2.~~	~~C.1~~ ~~Be in MODE 3.~~	~~12 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~D. Required Action and associated Completion Time of Condition A or B not met in MODE 3, 4 or 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.~~	~~D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.3.8.2.1~~	~~NOTE~~ ~~Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours.~~ ~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.8.2.2~~	~~Perform CHANNEL CALIBRATION. The Allowable Values shall be:~~ ~~a. Overvoltage ≤ 132 V.~~ ~~b. Undervoltage ≥ 108 V.~~ ~~c. Underfrequency ≥ 57 Hz.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.3.8.2.3~~	~~Perform a system functional test.~~	~~In accordance with the Surveillance Frequency Control Program~~

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3.4 ~~REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.1 Recirculation Loops Operating~~

~~LCO 3.4.1~~ ~~Two recirculation loops with matched pump speeds shall be in operation with core flow as a function of THERMAL POWER outside the Exclusion Region specified in the COLR.~~

~~OR~~

~~One recirculation loop may be in operation with core flow as a function of THERMAL POWER outside the Exclusion Region specified in the COLR and with the following limits applied when the associated LCO is applicable:~~

~~a.~~ ~~LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," single loop operation limits specified in the COLR;~~

~~b.~~ ~~LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," single loop operation limits specified in the COLR; and~~

~~c.~~ ~~LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," Function 2.b (Average Power Range Monitors Flow Biased High Scram), Allowable Value of Table 3.3.1.1-1 is reset for single loop operation.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~No recirculation loops in operation.~~	~~A.1~~ ~~Place the reactor mode switch in the Shutdown position.~~	~~Immediately~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B.~~ ~~One or two recirculation loops in operation in the Exclusion Region of the power/flow map described in the Core Operating Limits Report.~~	~~B.1~~ ~~Initiate action to exit the Exclusion Region.~~	~~Immediately~~
~~C.~~ ~~Recirculation pump speed mismatch not within limits.~~	~~C.1~~ ~~Trip one recirculation pump.~~	~~2 hours~~
~~D.~~ ~~Requirements of the LCO not met for reasons other than Conditions A, B or C.~~	~~D.1~~ ~~Satisfy requirements of the LCO.~~	~~24 hours~~
~~E.~~ ~~Required Action and associated Completion Time of Condition C or D not met.~~	~~E.1~~ ~~Be in MODE 3.~~	~~12 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.1.1~~	~~NOTE~~ ~~Not required to be performed until 24 hours after both recirculation loops are in operation.~~ ~~Verify recirculation pump speed mismatch with both recirculation pumps at steady state operation is as follows:~~ ~~a. The speed of the faster pump shall be ≤ 135% of the speed of the slower pump when operating at < 69.4 % RTP.~~ ~~b. The speed of the faster pump shall be ≥ 122% of the speed of the slower pump when operating at ≥ 69.4 % RTP.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.4.1.2~~	~~Verify core flow as a function of core THERMAL POWER is outside the Exclusion Region shown in the COLR.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.2 Jet Pumps~~

~~LCO 3.4.2~~ ~~All jet pumps shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more jet pumps inoperable.~~	~~A.1~~ ~~Be in MODE 3.~~	~~12 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.2.1~~	~~NOTES~~ ~~1. Not required to be performed until 4 hours after the associated recirculation loop is in operation.~~ ~~2. Not required to be performed until 24 hours after > 21.7% RTP.~~ ~~3. Criterion c is only applicable when pump speed is ≤ 60% rated speed.~~ ~~Verify at least one of the following criteria (a, b or c, as applicable) is satisfied for each operating recirculation loop:~~ ~~a. Recirculation pump flow to speed ratio differs by ≤ 5% from established patterns, and jet pump loop flow to recirculation pump speed ratio differs by ≤ 5% from established patterns.~~ ~~b. Each jet pump diffuser to lower plenum differential pressure differs by ≤ 20% from established patterns.~~ ~~c. The recirculation pump flow to speed ratio, jet pump loop flow to recirculation pump speed ratio, and jet pump diffuser to lower plenum differential pressure ratios are evaluated as being acceptable.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.3 Safety Relief Valves (SRVs) and Safety Valves (SVs)~~

~~LCO 3.4.3~~ ~~The safety function of 8 SRVs and SVs shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One SRV or SV inoperable.~~	~~A.1~~ ~~Restore the valve to OPERABLE status.~~	~~30 days~~
~~B.~~ ~~Two SRVs or SVs inoperable.~~	~~B.1~~ ~~Restore one valve to OPERABLE status.~~	~~7 days~~
~~C.~~ ~~Required Action and associated Completion Time of Condition A or B not met.~~ ~~OR~~ ~~Three or more SRVs or SVs inoperable.~~	~~C.1~~ ~~Be in MODE 3.~~ ~~AND~~ ~~C.2~~ ~~Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.3.1~~	~~Verify the safety function lift setpoints of the SRVs and SVs are as follows:~~ ~~Number of SRVs~~ / ~~Setpoint (psig)~~ ~~1~~ — ~~1110 ± 33.0~~ ~~1~~ — ~~1120 ± 33.0~~ ~~2~~ — ~~1130 ± 33.0~~ ~~2~~ — ~~1140 ± 33.0~~ ~~Number of SVs~~ / ~~Setpoint (psig)~~ ~~2~~ — ~~1240 ± 36.0~~ ~~Following testing, lift settings shall be within ± 1%.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~
~~SR 3.4.3.2~~	~~Verify each SRV actuator strokes when manually actuated.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.4 RCS Operational LEAKAGE~~

~~LCO 3.4.4~~ ~~RCS operational LEAKAGE shall be limited to:~~

~~a.~~ ~~≤ 5 gpm unidentified LEAKAGE;~~

~~b.~~ ~~≤ 25 gpm total LEAKAGE averaged over the previous 24 hour period; and~~

~~c.~~ ~~≤ 2 gpm increase in unidentified LEAKAGE within the previous 24 hour period in MODE 1.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Unidentified LEAKAGE not within limit.~~ ~~OR~~ ~~Total LEAKAGE not within limit.~~	~~A.1~~ ~~Reduce LEAKAGE to within limits.~~	~~4 hours~~
~~B.~~ ~~Unidentified LEAKAGE increase not within limit.~~	~~B.1~~ ~~Reduce unidentified LEAKAGE increase to within limits.~~ ~~OR~~	~~4 hours~~

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B.~~ ~~(continued)~~	~~B.2 Verify source of unidentified LEAKAGE increase is not service sensitive type 304 or type 316 austenitic stainless steel.~~	~~4 hours~~
~~C.~~ ~~Required Action and associated Completion Time of Condition A or B not met.~~	~~C.1 Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~C.2 Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.4.1~~	~~Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.5 RCS Leakage Detection Instrumentation~~

~~LCO 3.4.5~~ ~~The following RCS leakage detection instrumentation shall be OPERABLE:~~

~~a.~~ ~~One channel of the Drywell Sump System; and~~

~~b.~~ ~~One channel of the Primary Containment Air Sampling System.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Required Drywell Sump System inoperable.~~	~~A.1~~ ~~Restore required Drywell Sump System to OPERABLE status.~~	~~24 hours~~
~~B.~~ ~~Required Primary Containment Air Sampling System inoperable.~~	~~B.1~~ ~~Initiate action to restore required Primary Containment Air Sampling System to OPERABLE status.~~	~~Immediately~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. Required Drywell Sump System inoperable.~~ ~~AND~~ ~~Required Primary Containment Air Sampling System inoperable.~~	~~C.1 Restore required Drywell Sump System to OPERABLE status.~~ ~~OR~~ ~~C.2 Restore required Primary Containment Air Sampling System to OPERABLE status.~~	~~4 hours~~ ~~4 hours~~
~~D. Required Action and associated Completion Time of Condition A or C not met.~~	~~D.1 Be in MODE 3.~~ ~~AND~~ ~~D.2 Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.5.1~~	~~Perform a CHANNEL CHECK of required Primary Containment Air Sampling System.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.4.5.2~~	~~Perform a CHANNEL FUNCTIONAL TEST of required Primary Containment Air Sampling System instrumentation, equipment drain sump flow integrator, and floor drain sump flow integrator.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.4.5.3~~	~~Perform a CHANNEL FUNCTIONAL TEST of required equipment drain sump flow timer and floor drain sump flow timer.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.4.5.4~~	~~Perform a CHANNEL CALIBRATION of required Primary Containment Air Sampling System instrumentation, equipment drain sump flow integrator, and floor drain sump flow integrator.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.4.5.5~~	~~Perform a CHANNEL CALIBRATION of required equipment drain sump flow timer and floor drain sump flow timer.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.6 RCS Specific Activity~~

~~LCO 3.4.6~~ ~~The specific activity of the reactor coolant shall be limited to DOSE EQUIVALENT I-131 specific activity ≤ 0.2 μCi/gm.~~

~~APPLICABILITY:~~ ~~MODE 1,~~
~~MODES 2 and 3 with any main steam line not isolated.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Reactor coolant specific activity > 0.2 μCi/gm and ≤ 2.0 μCi/gm DOSE EQUIVALENT I-131.~~	~~NOTE~~ ~~LCO 3.0.4.c is applicable.~~ ~~A.1~~ ~~Determine DOSE EQUIVALENT I-131.~~ ~~AND~~ ~~A.2~~ ~~Restore DOSE EQUIVALENT I-131 to within limits.~~	 ~~Once per 4 hours~~ ~~48 hours~~
~~B.~~ ~~Required Action and associated Completion Time of Condition A not met.~~ ~~OR~~ ~~Reactor Coolant specific activity > 2.0 μCi/gm DOSE EQUIVALENT I-131.~~	~~B.1~~ ~~Determine DOSE EQUIVALENT I-131.~~ ~~AND~~ ~~B.2.1~~ ~~Isolate all main steam lines.~~ ~~OR~~	~~Once per 4 hours~~ ~~12 hours~~

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. (continued)~~	~~B.2.2.1 Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~B.2.2.2 Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.6.1~~	~~NOTE~~ ~~Only required to be performed in MODE 1.~~ ~~Verify reactor coolant DOSE EQUIVALENT I-131 specific activity is ≤ 0.2 μCi/gm.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.7 Residual Heat Removal (RHR) Shutdown Cooling System — Hot Shutdown~~

~~LCO 3.4.7~~ ~~Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.~~

~~NOTES~~

~~1.~~ ~~Both required RHR shutdown cooling subsystems and recirculation pumps may not be in operation for up to 2 hours per 8 hour period.~~

~~2.~~ ~~One required RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.~~

~~APPLICABILITY:~~ ~~MODE 3, with reactor steam dome pressure < the RCIC Steam Supply Line Pressure — Low isolation pressure.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each RHR shutdown cooling subsystem.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or two required RHR shutdown cooling subsystems inoperable.~~	~~A.1~~ ~~Initiate action to restore required RHR shutdown cooling subsystem(s) to OPERABLE status.~~ ~~AND~~	~~Immediately~~ ~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. (continued)~~	~~A.2 Verify by administrative means an alternate method of decay heat removal is available for each required inoperable RHR shutdown cooling subsystem.~~	~~1 hour~~
	~~AND~~	
	~~A.3 Be in MODE 4.~~	~~24 hours~~
~~B. No RHR shutdown cooling subsystem in operation.~~ ~~AND~~ ~~No recirculation pump in operation.~~	~~B.1 Initiate action to restore one RHR shutdown cooling subsystem or one recirculation pump to operation.~~	~~Immediately~~
	~~AND~~	
	~~B.2 Verify reactor coolant circulation by an alternate method.~~	~~1 hour from discovery of no reactor coolant circulation~~ ~~AND~~ ~~Once per 12 hours thereafter~~
	~~AND~~	
	~~B.3 Monitor reactor coolant temperature and pressure.~~	~~Once per hour~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.7.1~~	~~NOTE~~ ~~Not required to be met until 2 hours after reactor steam dome pressure is < the RCIC Steam Supply Line Pressure — Low isolation pressure.~~ ~~Verify one required RHR shutdown cooling subsystem or recirculation pump is operating.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.4.7.2~~	~~NOTE~~ ~~Not required to be performed until 12 hours after reactor steam dome pressure is < the RCIC Steam Supply Line Pressure — Low isolation pressure.~~ ~~Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.8 Residual Heat Removal (RHR) Shutdown Cooling System — Cold Shutdown~~

~~LCO 3.4.8~~ ~~Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.~~

~~NOTES~~

1. ~~Both required RHR shutdown cooling subsystems and recirculation pumps may not be in operation for up to 2 hours per 8 hour period.~~

2. ~~One required RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.~~

~~APPLICABILITY:~~ ~~MODE 4.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each shutdown cooling subsystem.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or two required RHR shutdown cooling subsystems inoperable.~~	~~A.1~~ ~~Verify by administrative means an alternate method of decay heat removal is available for each inoperable required RHR shutdown cooling subsystem.~~	~~1 hour~~ ~~AND~~ ~~Once per 24 hours thereafter~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. No RHR shutdown cooling subsystem in operation.~~ ~~AND~~ ~~No recirculation pump in operation.~~	~~B.1 Verify reactor coolant circulation by an alternate method.~~	~~1 hour from discovery of no reactor coolant circulation~~ ~~AND~~ ~~Once per 12 hours thereafter~~
	~~AND~~ ~~B.2 Monitor reactor coolant temperature.~~	~~Once per hour~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.4.8.1~~	~~Verify one required RHR shutdown cooling subsystem or one recirculation pump is operating.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.4.8.2~~	~~Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.9 RCS Pressure and Temperature (P/T) Limits~~

~~LCO 3.4.9~~ ~~RCS pressure, RCS temperature, RCS heatup and cooldown rates, and the recirculation pump starting temperature requirements shall be maintained within the limits specified in the PTLR.~~

~~APPLICABILITY:~~ ~~At all times.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~NOTE~~ ~~Required Action A.2 shall be completed if this Condition is entered.~~ ~~Requirements of the LCO not met in MODE 1, 2, or 3.~~	~~A.1~~ ~~Restore parameter(s) to within limits.~~ ~~AND~~ ~~A.2~~ ~~Determine RCS is acceptable for continued operation.~~	~~30 minutes~~ ~~72 hours~~
~~B.~~ ~~Required Action and associated Completion Time of Condition A not met.~~	~~B.1~~ ~~Be in MODE 3.~~ ~~AND~~ ~~B.2~~ ~~Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

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

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.4.9.1~~	~~NOTE~~ ~~Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing.~~	
	~~Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates are within the limits specified in the PTLR.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.9.2~~	~~Verify RCS pressure and RCS temperature are within the criticality limits specified in the PTLR.~~	~~Once within 15 minutes prior to control rod withdrawal for the purpose of achieving criticality~~
~~SR 3.4.9.3~~	~~NOTE~~ ~~Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup.~~ ~~Verify the difference between the bottom head coolant temperature and the Reactor Pressure Vessel (RPV) coolant temperature is within the limits specified in the PTLR.~~	~~Once within 15 minutes prior to each startup of a recirculation pump~~
~~SR 3.4.9.4~~	~~NOTE~~ ~~Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup.~~ ~~Verify the difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is within the limits specified in the PTLR.~~	~~Once within 15 minutes prior to each startup of a recirculation pump~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.9.5~~	~~NOTE~~ ~~Only required to be performed when tensioning the reactor vessel head bolting studs.~~ ~~Verify temperatures at the reactor vessel head flange and the shell adjacent to the head flange are within the limits specified in the PTLR.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.4.9.6~~	~~NOTE~~ ~~Not required to be performed until 30 minutes after RCS temperature $\leq$ 80°F in MODE 4.~~ ~~Verify temperatures at the reactor vessel head flange and the shell adjacent to the head flange are within the limits specified in the PTLR.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.4.9.7~~	~~NOTE~~ ~~Not required to be performed until 12 hours after RCS temperature $\leq$ 100°F in MODE 4.~~ ~~Verify temperatures at the reactor vessel head flange and the shell adjacent to the head flange are within the limits specified in the PTLR.~~	~~In accordance with the Surveillance Frequency Control Program~~

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~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.10 Reactor Steam Dome Pressure~~

~~LCO 3.4.10~~ ~~The reactor steam dome pressure shall be ≤ 1025 psig.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Reactor steam dome pressure not within limit.~~	~~A.1~~ ~~Restore reactor steam dome pressure to within limit.~~	~~15 minutes~~
~~B.~~ ~~Required Action and associated Completion Time not met.~~	~~B.1~~ ~~Be in MODE 3.~~	~~12 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.10.1~~	~~Verify reactor steam dome pressure is ≤ 1025 psig.~~	~~In accordance with the Surveillance Frequency Control Program~~

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3.5 ~~EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM~~

~~3.5.1 ECCS — Operating~~

~~LCO 3.5.1~~ ~~Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of four safety/relief valves shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODE 1,~~
~~MODES 2 and 3, except High Pressure Coolant Injection (HPCI) is not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 100 psig.~~

~~ACTIONS~~

~~NOTE~~

~~LCO 3.0.4.b is not applicable to HPCI.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One Residual Heat Removal (RHR) pump inoperable.~~	~~A.1~~ ~~Restore RHR pump to OPERABLE status.~~	~~30 Days~~
~~B.~~ ~~One low pressure ECCS subsystem inoperable for reasons other than Condition A.~~	~~B.1~~ ~~Restore low pressure ECCS subsystem to OPERABLE status.~~	~~7 days~~
~~C.~~ ~~One Core Spray subsystem inoperable.~~ ~~AND~~ ~~One or two RHR pump(s) inoperable.~~	~~C.1~~ ~~Restore Core Spray subsystem to OPERABLE status.~~ ~~OR~~ ~~C.2~~ ~~Restore RHR pump(s) to OPERABLE status.~~	~~72 hours~~ ~~72 hours~~
~~D.~~ ~~Both Core Spray subsystems inoperable.~~	~~D.1~~ ~~Restore one Core Spray subsystem to OPERABLE status.~~	~~72 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~E.~~ ~~Required Action and associated Completion Time of Condition A, B, C, or D not met.~~	~~E.1~~ ~~Be in MODE 3.~~ ~~AND~~ ~~E.2~~ ~~Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~
~~F.~~ ~~HPCI System inoperable.~~	~~F.1~~ ~~Verify by administrative means RCIC System is OPERABLE.~~ ~~AND~~ ~~F.2~~ ~~Restore HPCI System to OPERABLE status.~~	~~Immediately~~ ~~14 days~~
~~G.~~ ~~HPCI System inoperable.~~ ~~AND~~ ~~One RHR pump inoperable.~~	~~G.1~~ ~~Restore HPCI System to OPERABLE status.~~ ~~OR~~ ~~G.2~~ ~~Restore RHR pump to OPERABLE status.~~	~~7 days~~ ~~7 days~~
~~H.~~ ~~HPCI System inoperable.~~ ~~AND~~ ~~One low pressure ECCS subsystem is inoperable for reasons other than Condition A.~~	~~H.1~~ ~~Restore HPCI System to OPERABLE status.~~ ~~OR~~ ~~H.2~~ ~~Restore low pressure ECCS subsystem to OPERABLE status.~~	~~72 hours~~ ~~72 hours~~
~~I.~~ ~~HPCI System inoperable.~~ ~~AND~~ ~~One ADS valve inoperable.~~	~~I.1~~ ~~Restore HPCI System to OPERABLE status.~~ ~~OR~~ ~~I.2~~ ~~Restore ADS valve to OPERABLE status.~~	~~72 hours~~ ~~72 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~J.~~ ~~Required Action and associated Completion Time of Condition F, G, H, or I not met.~~	~~J.1~~ ~~Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~J.2~~ ~~Reduce reactor steam dome pressure to ≤ 150 psig.~~	~~36 hours~~
~~K.~~ ~~One ADS valve inoperable.~~	~~K.1~~ ~~Restore ADS valve to OPERABLE status.~~	~~30 days~~
~~L.~~ ~~One ADS valve inoperable.~~	~~L.1~~ ~~Restore ADS valve to OPERABLE status.~~	~~72 hours~~
~~AND~~	~~OR~~	
~~One low pressure ECCS subsystem inoperable for reasons other than Condition A.~~	~~L.2~~ ~~Restore low pressure ECCS subsystem to OPERABLE status.~~	~~72 hours~~
~~M.~~ ~~Two or more ADS valves inoperable.~~	~~M.1~~ ~~Be in MODE 3.~~	~~12 hours~~
~~OR~~	~~AND~~	
~~Required Action and associated Completion Time of Condition K or L not met.~~	~~M.2~~ ~~Reduce reactor steam dome pressure to ≤ 100 psig.~~	~~36 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~N.~~ ~~Two or more low pressure ECCS subsystems inoperable for reasons other than Condition C or D.~~ ~~OR~~ ~~HPCI System and two or more ADS valves inoperable.~~ ~~OR~~ ~~HPCI System and two or more low pressure ECCS subsystems inoperable.~~ ~~OR~~ ~~One ADS valve and two or more low pressure ECCS subsystems inoperable.~~ ~~OR~~ ~~One ADS valve and HPCI System and one low pressure ECCS subsystem inoperable.~~	~~N.1~~ ~~Enter LCO 3.0.3.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.5.1.1~~	~~Verify, for each ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.5.1.2~~	~~NOTE~~ ~~The low pressure coolant injection (LPCI) system may be considered OPERABLE during alignment and operation for decay heat removal in MODE 3, if capable of being manually realigned and not otherwise inoperable.~~ ~~NOTE~~ ~~Not required to be met for system vent flow paths opened under administrative control.~~ ~~Verify each ECCS injection/spray subsystem power operated and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.1.3~~	~~Verify a 30 day supply of nitrogen exists for each ADS accumulator.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.1.4~~	~~Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified reactor pressure.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~

~~SYSTEM~~	~~FLOW RATE~~	~~NO. OF PUMPS~~	~~SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF~~
~~Core Spray~~	~~≥ 2718 gpm~~	~~1~~	~~≥ 113 psig~~
~~LPCI~~	~~≥ 4320 gpm~~	~~1~~	~~≥ 20 psig~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.5.1.5~~	~~NOTE~~ ~~Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.~~ ~~Verify, with reactor pressure ≤ 1025 and ≥ 940 psig, the HPCI pump can develop a flow rate ≥ 2700 gpm against a system head corresponding to reactor pressure.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~
~~SR 3.5.1.6~~	~~NOTE~~ ~~Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.~~ ~~Verify, with reactor pressure ≤ 160 psig, the HPCI pump can develop a flow rate ≥ 2700 gpm against a system head corresponding to reactor pressure.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.1.7~~	~~NOTES~~ ~~1. Vessel injection /spray may be excluded.~~ ~~2. For the LPCI System, the Surveillance may be met by any series of sequential and/or overlapping steps, such that the LPCI Loop Select function is tested.~~ ~~Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.5.1.8~~	~~NOTE~~ ~~Valve actuation may be excluded.~~ ~~Verify the ADS actuates on an actual or simulated automatic initiation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.1.9~~	~~Verify each ADS valve actuator strokes when manually actuated.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~

~~3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM~~

~~3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control~~

~~LCO 3.5.2~~ ~~DRAIN TIME of RPV water inventory to the TS 2.1.1.3 Safety Limit shall be ≥ 36 hours.~~

~~AND~~

~~One low pressure ECCS subsystem shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODES 4 and 5.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. Required ECCS subsystem inoperable.~~	~~A.1 Restore required ECCS subsystem to OPERABLE status.~~	~~4 hours~~
~~B. Required Action and associated Completion Time of Condition A not met.~~	~~B.1 Initiate action to establish a method of water injection capable of operating without offsite electrical power.~~	~~Immediately~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. DRAIN TIME < 36 hours and ≥ 8 hours.~~	~~C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.~~	~~4 hours~~
	~~AND~~	
	~~C.2 Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.~~	~~4 hours~~
	~~AND~~	
	~~C.3 Verify one standby gas treatment subsystem is capable of being placed in operation in less that the DRAIN TIME.~~	~~4 hours~~

~~(continued)~~

~~ACTIONS (Continued)~~

~~D.~~	~~DRAIN TIME < 8 hours.~~	~~D.1 ———NOTE——— Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power.~~ ~~Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TS 2.1.1.3 Safety Limit for ≥ 36 hours.~~	~~Immediately~~
		~~AND~~	
		~~D.2 Initiate action to establish secondary containment boundary.~~	~~Immediately~~
		~~AND~~	
		~~D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room.~~	~~Immediately~~
		~~AND~~	
		~~D.4 Initiate action to verify one standby gas treatment subsystem is capable of being placed in operation.~~	~~Immediately~~

~~(continued)~~

~~ACTIONS (Continued)~~

~~E.~~	~~Required Action and associated Completion Time of Condition C or D not met.~~ ~~OR~~ ~~DRAIN TIME < 1 hour.~~	~~E.1~~	~~Initiate action to restore DRAIN TIME to ≥ 36 hours.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.5.2.1~~	~~Verify DRAIN TIME ≥ 36 hours.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.2.2~~	~~Verify, for a required Low Pressure Coolant Injection (LPCI) subsystem, the suppression pool water level is ≥ 7.0 ft.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.5.2.3~~	~~Verify, for a required Core Spray (CS) subsystem, the:~~ ~~a. Suppression pool water level is ≥ 8.0 ft; or~~ ~~b. Condensate storage tank water level in one CST is ≥ 11 ft or ≥ 7 ft in both CSTs.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.2.4~~	~~Verify, for the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.2.5~~	~~NOTE~~ ~~A LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.~~ ~~NOTE~~ ~~Not required to be met for system vent flow paths opened under administrative control.~~ ~~Verify, for the required ECCS subsystem, each power operated and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.5.2.6~~	~~Operate the required ECCS subsystem through the recirculation line for ≥ 10 minutes.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.2.7~~	~~Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.2.8~~	~~NOTE~~ ~~Vessel injection/spray may be excluded.~~ ~~Verify the required ECCS injection/spray subsystem can be manually operated.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM~~

~~3.5.3 RCIC System~~

~~LCO 3.5.3~~ ~~The RCIC System shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODE 1,~~
~~MODES 2 and 3 with reactor steam dome pressure > 150 psig.~~

~~ACTIONS~~

---NOTE---
~~LCO 3.0.4.b is not applicable to RCIC.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~RCIC System inoperable.~~	~~A.1~~ ~~Verify by administrative means High Pressure Coolant Injection System is OPERABLE.~~	~~Immediately~~
	~~AND~~	
	~~A.2~~ ~~Restore RCIC System to OPERABLE status.~~	~~14 days~~
~~B.~~ ~~Required Action and associated Completion Time not met.~~	~~B.1~~ ~~Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~B.2~~ ~~Reduce reactor steam dome pressure to ≤ 150 psig.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.5.3.1~~	~~Verify the RCIC System locations susceptible to gas accumulation are sufficiently filled with water.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.3.2~~	~~NOTE~~ ~~Not required to be met for system vent flow paths opened under administrative control.~~ ~~Verify each RCIC System power operated and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.5.3.3~~	~~NOTE~~ ~~Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.~~ ~~Verify, with reactor pressure ≤ 1025 psig and ≥ 940 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~
~~SR 3.5.3.4~~	~~NOTE~~ ~~Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.~~ ~~Verify, with reactor pressure ≤ 160 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.5.3.5~~	~~NOTE~~ ~~Vessel injection may be excluded.~~ ~~Verify the RCIC System actuates on an actual or simulated automatic initiation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~

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3.6 ~~CONTAINMENT SYSTEMS~~

~~3.6.1.1 Primary Containment~~

~~LCO 3.6.1.1~~ ~~Primary containment shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Primary containment inoperable.~~	~~A.1~~ ~~Restore primary containment to OPERABLE status.~~	~~1 hour~~
~~B.~~ ~~Required Action and associated Completion Time not met.~~	~~B.1~~ ~~Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~B.2~~ ~~Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.1.1.1~~	~~Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Program.~~	~~In accordance with the Primary Containment Leakage Rate Program.~~
~~SR 3.6.1.1.2~~	~~Verify suppression chamber pressure does not increase at a rate > 0.009 psi per minute tested over a 10 minute period at a differential pressure of > 1.0 psid.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.1.2 Primary Containment Air Lock~~

~~LCO 3.6.1.2~~ ~~The primary containment air lock shall be OPERABLE.~~

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

~~ACTIONS~~

~~NOTES~~

1. ~~Entry and exit is permissible to perform repairs of the air lock components.~~
2. ~~Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when air lock leakage results in exceeding overall containment leakage rate acceptance criteria.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One primary containment air lock door inoperable.~~	~~NOTES~~ ~~1.~~ ~~Required Actions A.1, A.2, and A.3 are not applicable if both doors in the air lock are inoperable and Condition C is entered.~~ ~~2.~~ ~~Entry and exit is permissible for 7 days under administrative controls.~~ ~~A.1 Verify the OPERABLE door is closed.~~ ~~AND~~	~~1 hour~~
		~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. (continued)~~	~~A.2 Lock the OPERABLE door closed.~~ ~~AND~~ ~~A.3 NOTE~~ ~~Air lock doors in high radiation areas or areas with limited access due to inerting may be verified locked closed by administrative means.~~ ~~Verify the OPERABLE door is locked closed.~~	~~24 hours~~ ~~Once per 31 days~~
~~B. Primary 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 air lock are inoperable and Condition C is entered.~~ ~~2. Entry into and exit from containment is permissible under the control of a dedicated individual.~~ ~~B.1 Verify an OPERABLE door is closed.~~ ~~AND~~	 ~~1 hour~~ ~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. (continued)~~	~~B.2 Lock an OPERABLE door closed.~~	~~24 hours~~
	~~AND~~	
	~~B.3 ———NOTE——— Air lock doors in high radiation areas or areas with limited access due to inerting may be verified locked closed by administrative means.~~ ~~Verify an OPERABLE door is locked closed.~~	~~Once per 31 days~~
~~C. Primary containment air lock inoperable for reasons other than Condition A or B.~~	~~C.1 Initiate action to evaluate primary containment overall leakage rate per LCO 3.6.1.1, using current air lock test results.~~	~~Immediately~~
	~~AND~~	
	~~C.2 Verify a door is closed.~~	~~1 hour~~
	~~AND~~	
	~~C.3 Restore air lock to OPERABLE status.~~	~~24 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~D.~~ ~~Required Action and associated Completion Time not met.~~	~~D.1~~ ~~Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~D.2~~ ~~Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.1.2.1~~	~~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 3.6.1.1.1.~~	
	~~Perform required primary containment air lock leakage rate testing in accordance with the Primary Containment Leakage Rate Testing Program.~~ ~~The acceptance criterion for air lock testing is overall air lock leakage rate~~ $\cancel{\leq 0.05\ L_a}$ ~~when tested at~~ $\cancel{\geq P_a}$.	~~In accordance with the Primary Containment Leakage Rate Testing Program.~~
~~SR 3.6.1.2.2~~	~~Verify only one door in the primary containment air lock can be opened at a time.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.1.3 Primary Containment Isolation Valves (PCIVs)~~

~~LCO 3.6.1.3~~ ~~Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODES 1, 2, and 3~~

~~ACTIONS~~

~~NOTES~~

1. ~~Penetration flow paths may be unisolated intermittently under administrative controls.~~
2. ~~Separate Condition entry is allowed for each penetration flow path.~~
3. ~~Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.~~
4. ~~Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~NOTE~~ ~~Only applicable to penetration flow paths with two PCIVs.~~ ~~One or more penetration flow paths with one PCIV inoperable except for MSIV or purge valve leakage not within limits.~~	~~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 except for main steam line~~ ~~AND~~ ~~8 hours for main steam line~~ ~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. (continued)~~	~~A.2 NOTES~~ ~~1. Isolation devices in high radiation areas may be verified by use of administrative means.~~ ~~2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.~~ ~~Verify the affected penetration flow path is isolated.~~	~~Once per 31 days for isolation devices outside primary containment~~ ~~AND~~ ~~Prior to entering MODE 2 or 3 from MODE 4, if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days, for isolation devices inside primary containment~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B.~~ ~~NOTE~~ ~~Only applicable to penetration flow paths with two PCIVs.~~ ~~One or more penetration flow paths with two PCIVs inoperable except for MSIV or purge valve leakage not within limits.~~	~~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.~~ ~~NOTE~~ ~~Only applicable to penetration flow paths with only one PCIV.~~ ~~One or more penetration flow paths with one PCIV inoperable.~~	~~C.1~~ ~~Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.~~ ~~AND~~ ~~C.2~~ ~~NOTES~~ ~~1. Isolation devices in high radiation areas may be verified by use of administrative means.~~ ~~2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.~~	~~72 hours~~

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. (continued)~~	~~C.2 Verify the affected penetration flow path is isolated.~~	~~Once per 31 days~~
~~D. One or more penetration flow paths with one or more MSIVs not within leakage limits.~~	~~D.1 Restore leakage to within limits.~~	~~8 hours~~
~~E. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.~~	~~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.~~	~~24 hours~~
	~~AND~~	
	~~E.2~~ ~~NOTE~~ ~~Only required to be performed if a purge valve with resilient seal is used to satisfy Required Action E.1.~~ ~~Restore leakage to within limits.~~	~~72 hours~~
	~~AND~~	
	~~E.3~~ ~~NOTES~~ ~~1. Isolation devices in high radiation areas may be verified by use of administrative means.~~	

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~E. (continued)~~	~~E.3~~ ~~NOTES~~ ~~2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.~~ ~~Verify the affected penetration flow path is isolated.~~	 ~~Once per 31 days for isolation device outside containment~~
~~F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.~~	~~F.1 Be in MODE 3.~~ ~~AND~~ ~~F.2 Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.6.1.3.1~~	~~NOTE~~ ~~Not required to be met when the 18 inch primary containment purge valves are open for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open.~~ ~~Verify each 18 inch primary containment purge valve is closed.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.1.3.2~~	~~Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.1.3.3~~	~~Verify the isolation time of each power operated automatic PCIV, except for MSIVs, is within limits.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~
~~SR 3.6.1.3.4~~	~~Perform leakage rate testing for each primary containment purge valve with resilient seals.~~	~~In accordance with the Surveillance Frequency Control Program~~ ~~AND~~ ~~Once within 92 days after opening the valve~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.1.3.5~~	~~Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~
~~SR 3.6.1.3.6~~	~~NOTE~~ ~~For the MSIVs, this SR may be met by any series of sequential, overlapping, or total system steps, such that proper operation is verified.~~ ~~Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.1.3.7~~	~~Verify a representative sample of reactor instrumentation line EFCVs actuate on a simulated instrument line break to restrict flow.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.1.3.8~~	~~Remove and test the explosive squib from each shear isolation valve of the TIP System.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.1.3.9~~	~~Verify leakage rate through each MSIV is ≤ 100 scfh and that the combined maximum pathway leakage rate for all four main steam lines is ≤ 200 scfh when tested at ≥ 24 psig.~~	~~In accordance with the Primary Containment Leakage Rate Testing Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.1.4 Drywell Air Temperature~~

~~LCO 3.6.1.4~~ ~~Drywell average air temperature shall be ≤ 135°F.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Drywell average air temperature not within limit.~~	~~A.1~~ ~~Restore drywell average air temperature to within limit.~~	~~8 hours~~
~~B.~~ ~~Required Action and associated Completion Time not met.~~	~~B.1~~ ~~Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~B.2~~ ~~Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.1.4.1~~	~~Verify drywell average air temperature is within limit.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.1.5 Low-Low Set (LLS) Valves~~

~~LCO 3.6.1.5~~ ~~The LLS function of two safety/relief valves shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One LLS valve inoperable.~~	~~A.1~~ ~~Restore LLS valve to OPERABLE status.~~	~~14 days~~
~~B.~~ ~~Required Action and associated Completion Time of Condition A not met.~~ ~~OR~~ ~~Two LLS valves inoperable.~~	~~B.1~~ ~~Be in MODE 3.~~ ~~AND~~ ~~B.2~~ ~~Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.1.5.1~~	~~Verify each LLS valve actuator strokes when manually actuated.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~
~~SR 3.6.1.5.2~~	~~NOTE~~ ~~Valve actuation may be excluded.~~ ~~Verify the LLS System actuates on an actual or simulated automatic initiation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.1.6 Reactor Building-to-Suppression Chamber Vacuum Breakers~~

~~LCO 3.6.1.6~~ ~~Each reactor building-to-suppression chamber vacuum breaker assembly shall be OPERABLE.~~

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

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each reactor building-to-suppression chamber vacuum breaker assembly.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or two reactor building-to-suppression chamber vacuum breaker assemblies with one valve not closed.~~	~~A.1~~ ~~Close the open vacuum breaker assembly valve.~~	~~72 hours~~
~~B.~~ ~~One or two reactor building-to-suppression chamber vacuum breaker assemblies with both valves not closed.~~	~~B.1~~ ~~Close one open vacuum breaker assembly valve.~~	~~1 hour~~
~~C.~~ ~~One reactor building-to-suppression chamber vacuum breaker assembly with one or two valves inoperable for opening.~~	~~C.1~~ ~~Restore the vacuum breaker assembly to OPERABLE status.~~	~~72 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~		~~REQUIRED ACTION~~		~~COMPLETION TIME~~
~~D.~~	~~Two reactor building-to-suppression chamber vacuum breaker assemblies with one or two valves inoperable for opening.~~	~~D.1~~	~~Restore both valves in one vacuum breaker assembly to OPERABLE status.~~	~~1 hour~~
~~E.~~	~~Required Action and Associated Completion Time not met.~~	~~E.1~~	~~Be in MODE 3.~~	~~12 hours~~
		~~AND~~		
		~~E.2~~	~~Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.6.1.6.1~~	~~NOTES~~ ~~1. Not required to be met for vacuum breaker assembly valves that are open during Surveillances.~~ ~~2. Not required to be met for vacuum breaker assembly valves open when performing their intended function.~~ ~~Verify each vacuum breaker assembly valve is closed.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.1.6.2~~	~~Perform a functional test of each vacuum breaker assembly valve.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.1.6.3~~	~~Verify the opening setpoint of each vacuum breaker assembly valve is~~ ≤ ~~0.614 psid.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.1.7 Suppression Chamber-to-Drywell Vacuum Breakers~~

~~LCO 3.6.1.7~~ ~~Six suppression chamber-to-drywell vacuum breakers shall be OPERABLE for opening.~~

~~AND~~

~~Seven suppression chamber-to-drywell vacuum breakers shall be closed, except when performing their intended function.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One required suppression chamber-to-drywell vacuum breaker inoperable for opening.~~	~~A.1~~ ~~Restore one vacuum breaker to OPERABLE status.~~	~~72 hours~~
~~B.~~ ~~One suppression chamber-to-drywell vacuum breaker not closed.~~	~~B.1~~ ~~Close the open vacuum breaker.~~	~~2 hours~~
~~C.~~ ~~Required Action and associated Completion Time not met.~~	~~C.1~~ ~~Be in MODE 3.~~ ~~AND~~ ~~C.2~~ ~~Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.1.7.1~~	~~NOTE~~ ~~Not required to be met for vacuum breakers that are open during Surveillances.~~ ~~Verify each vacuum breaker is closed.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.1.7.2~~	~~Perform a functional test of each required vacuum breaker.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.1.7.3~~	~~Verify the opening setting of each required vacuum breaker is $\leq$ 0.5 psid.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.2.1 Suppression Pool Average Temperature~~

~~LCO 3.6.2.1~~ ~~Suppression pool average temperature shall be:~~

~~a.~~ ~~$\leq$ 95°F when any OPERABLE intermediate range monitor (IRM) is $>$ 25/40 divisions of full scale on Range 7 and no testing that adds heat to the suppression pool is being performed;~~

~~b.~~ ~~$\leq$ 105°F when any OPERABLE IRM channel is $>$ 25/40 divisions of full scale on Range 7 and testing that adds heat to the suppression pool is being performed; and~~

~~c.~~ ~~$\leq$ 110°F when all OPERABLE IRM channels are $\leq$ 25/40 divisions of full scale on Range 7.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Suppression pool average temperature $>$ 95°F but $\leq$ 110°F.~~ ~~AND~~ ~~Any OPERABLE IRM channel $>$ 25/40 divisions of full scale on Range 7.~~ ~~AND~~ ~~Not performing testing that adds heat to the suppression pool.~~	~~A.1~~ ~~Verify suppression pool average temperature $\leq$ 110°F.~~ ~~AND~~ ~~A.2~~ ~~Restore suppression pool average temperature to $\leq$ 95°F.~~	~~Once per hour~~ ~~24 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. Required Action and associated Completion Time of Condition A not met.~~	~~B.1 Reduce THERMAL POWER until all OPERABLE IRM channels ≤ 25/40 divisions of full scale on Range 7.~~	~~12 hours~~
~~C. Suppression pool average temperature > 105°F.~~ ~~AND~~ ~~Any OPERABLE IRM channel > 25/40 divisions of full scale on Range 7.~~ ~~AND~~ ~~Performing testing that adds heat to the suppression pool.~~	~~C.1 Suspend all testing that adds heat to the suppression pool.~~	~~Immediately~~
~~D. Suppression pool average temperature > 110°F but ≤ 120°F.~~	~~D.1 Place the reactor mode switch in the Shutdown position.~~ ~~AND~~ ~~D.2 Verify suppression pool average temperature ≤ 120°F.~~ ~~AND~~ ~~D.3 Be in MODE 4.~~	~~Immediately~~ ~~Once per 30 minutes~~ ~~36 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~E. Suppression pool average temperature~~ ~~$> 120°F$.~~	~~E.1 Depressurize the reactor vessel to < 200 psig.~~	~~12 hours~~
	~~AND~~	
	~~E.2 Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.2.1.1~~	~~Verify suppression pool average temperature is within the applicable limits.~~	~~In accordance with the Surveillance Frequency Control Program~~ ~~AND~~ ~~5 minutes when performing testing that adds heat to the suppression pool~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.2.2 Suppression Pool Water Level~~

~~LCO 3.6.2.2~~ ~~Suppression pool water level shall be ≥ 10.11 ft and ≤ 10.43 ft.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Suppression pool water level not within limits.~~	~~A.1~~ ~~Restore suppression pool water level to within limits.~~	~~2 hours~~
~~B.~~ ~~Required Action and associated Completion Time not met.~~	~~B.1~~ ~~Be in MODE 3.~~ ~~AND~~ ~~B.2~~ ~~Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.2.2.1~~	~~Verify suppression pool water level is within limits.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling~~

~~LCO 3.6.2.3~~ ~~Two RHR suppression pool cooling subsystems shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~		~~REQUIRED ACTION~~		~~COMPLETION TIME~~
~~A.~~	~~One RHR pump inoperable.~~	~~A.1~~	~~Restore RHR pump to OPERABLE status.~~	~~30 days~~
~~B.~~	~~One RHR pump in each suppression pool cooling subsystem inoperable.~~	~~B.1~~	~~Restore one RHR pump to OPERABLE status.~~	~~7 days~~
~~C.~~	~~One RHR suppression pool cooling subsystem inoperable for reasons other than Condition A.~~	~~C.1~~	~~Restore RHR suppression pool cooling subsystem to OPERABLE status.~~	~~7 days~~
~~D.~~	~~Two RHR suppression pool cooling subsystems inoperable for reasons other than Condition B.~~	~~D.1~~	~~Restore one RHR suppression pool cooling subsystem to OPERABLE status.~~	~~8 hours~~
~~E.~~	~~Required Action and associated Completion Time not met.~~	~~E.1~~	~~Be in MODE 3.~~	~~12 hours~~
		~~AND~~		
		~~E.2~~	~~Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.2.3.1~~	~~Verify by administrative means each RHR suppression pool cooling subsystem manual, power operated and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.2.3.2~~	~~Verify each RHR pump develops a flow rate ≥ 4800 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.~~	~~In accordance with the INSERVICE TESTING PROGRAM~~
~~SR 3.6.2.3.3~~	~~Verify RHR suppression pool cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.2.4 Residual Heat Removal (RHR) Suppression Pool Spray~~

~~LCO 3.6.2.4~~ ~~Two RHR suppression pool spray subsystems shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One RHR suppression pool spray subsystem inoperable.~~	~~A.1~~ ~~Restore RHR suppression pool spray subsystem to OPERABLE status.~~	~~30 days~~
~~B.~~ ~~Two RHR suppression pool spray subsystems inoperable.~~	~~B.1~~ ~~Restore one RHR suppression pool spray subsystem to OPERABLE status.~~	~~8 hours~~
~~C.~~ ~~Required Action and associated Completion Time not met.~~	~~C.1~~ ~~Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~C.2~~ ~~Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.2.4.1~~	~~Verify by an air test that the suppression pool spray header and nozzles are unobstructed.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.2.4.2~~	~~Verify RHR suppression pool spray subsystem locations susceptible to gas accumulation are sufficiently filled with water.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.3.1 Containment Atmosphere Dilution (CAD) System~~

~~The requirement for the CAD System is deleted per Amendment~~

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~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.3.2 Primary Containment Oxygen Concentration~~

~~LCO 3.6.3.2~~ ~~The primary containment oxygen concentration shall be < 4.0 volume percent.~~

~~APPLICABILITY:~~ ~~MODE 1 during the time period:~~

~~a.~~ ~~From 24 hours after THERMAL POWER is > 15% RTP following startup, to~~

~~b.~~ ~~24 hours prior to reducing THERMAL POWER to < 15% RTP prior to reactor shutdown.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Primary containment oxygen concentration not within limit.~~	~~A.1~~ ~~Restore oxygen concentration to within limit.~~	~~24 hours~~
~~B.~~ ~~Required Action and associated Completion Time not met.~~	~~B.1~~ ~~Reduce THERMAL POWER to ≤ 15% RTP.~~	~~8 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.3.2.1~~	~~Verify primary containment oxygen concentration is within limits.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.4.1 Secondary Containment~~

~~LCO 3.6.4.1~~ ~~The secondary containment shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Secondary containment inoperable.~~	~~A.1~~ ~~Restore secondary containment to OPERABLE status.~~	~~4 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 4.~~	~~12 hours~~ ~~36 hours~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.4.1.1~~	~~Verify all secondary containment equipment hatches are closed.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.4.1.2~~	~~NOTE~~ ~~Doors in high radiation areas may be verified by administrative means.~~ ~~Verify that either the outer door(s) or the inner door(s) in each secondary containment access opening are closed, except when the access opening is being used for entry and exit.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.4.1.3~~	~~Verify each SBGT subsystem can maintain $\geq$ 0.25 inch of vacuum water gauge in the secondary containment at a flow rate $\leq$ 4000 cfm.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.4.2 Secondary Containment Isolation Valves/Dampers (SCIV/Ds)~~

~~LCO 3.6.4.2~~ ~~Each SCIV/D shall be OPERABLE.~~

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

~~ACTIONS~~

~~NOTES~~

1. ~~Penetration flow paths may be unisolated intermittently under administrative controls.~~
2. ~~Separate Condition entry is allowed for each penetration flow path.~~
3. ~~Enter applicable Conditions and Required Actions for systems made inoperable by SCIV/Ds.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more penetration flow paths with one SCIV/D inoperable.~~	~~A.1~~ ~~Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve/damper, closed manual valve, or blind flange.~~ ~~AND~~	~~8 hours~~

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~(continued)~~	~~A.2~~ ~~NOTES~~ ~~1. Isolation devices in high radiation areas may be verified by use of administrative means.~~ ~~2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.~~ ~~Verify the affected penetration flow path is isolated.~~	~~Once per 31 days~~
~~B.~~ ~~NOTE~~ ~~Only applicable to penetration flow paths with two isolation valves/dampers.~~ ~~One or more penetration flow paths with two SCIV/Ds inoperable.~~	~~B.1~~ ~~Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve/damper, closed manual valve, or blind flange.~~	~~4 hours~~

~~(continued)~~

~~ACTIONS (continued)~~

~~C.~~	~~Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.~~	~~C.1~~	~~Be in MODE 3.~~	~~12 hours~~
		~~AND~~		
		~~C.2~~	~~Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.6.4.2.1~~	~~Verify the isolation time of each power operated automatic SCIV/D is within limits.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.4.2.2~~	~~Verify each automatic SCIV/D actuates to the isolation position on an actual or simulated actuation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.6 CONTAINMENT SYSTEMS~~

~~3.6.4.3 Standby Gas Treatment (SBGT) System~~

~~LCO 3.6.4.3~~ ~~Two SBGT subsystems shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One SBGT subsystem inoperable.~~	~~A.1~~ ~~Restore SBGT subsystem to OPERABLE status.~~	~~7 days~~
~~B.~~ ~~Required Action and associated Completion Time of Condition A not met.~~	~~B.1~~ ~~Be in MODE 3.~~ ~~AND~~ ~~B.2~~ ~~Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~		~~REQUIRED ACTION~~		~~COMPLETION TIME~~
~~C.~~	~~Two SBGT subsystems inoperable.~~	~~C.1~~	~~Enter LCO 3.0.3.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.6.4.3.1~~	~~Operate each SBGT subsystem for ≥ 15 continuous minutes.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.4.3.2~~	~~NOTE~~ ~~When a SBGT subsystem is placed in an inoperable status solely for the performance of VFTP testing required by this Surveillance on the other subsystem, entry into associated Conditions and Required Actions may be delayed for up to 1 hour.~~ ~~Perform required SBGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).~~	~~In accordance with the VFTP~~
~~SR 3.6.4.3.3~~	~~Verify each SBGT subsystem actuates on an actual or simulated initiation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.6.4.3.4~~	~~Verify each SBGT filter cooler bypass damper can be opened and the fan started.~~	~~In accordance with the Surveillance Frequency Control Program~~

Deleted

3.7 PLANT SYSTEMS

3.7.1 ~~Residual Heat Removal Service Water (RHRSW) System~~

~~LCO 3.7.1~~ ~~Two RHRSW subsystems shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One RHRSW pump inoperable.~~	~~A.1~~ ~~Restore RHRSW pump to OPERABLE status.~~	~~30 days~~
~~B.~~ ~~One RHRSW pump in each subsystem inoperable.~~	~~B.1~~ ~~Restore one RHRSW pump to OPERABLE status.~~	~~7 days~~
~~C.~~ ~~One RHRSW subsystem inoperable for reasons other than Condition A.~~	~~C.1~~ ~~NOTE~~ ~~Enter applicable Conditions and Required Actions of LCO 3.4.7, "Residual Heat Removal (RHR) Shutdown Cooling System-Hot Shutdown," for RHR shutdown cooling made inoperable by RHRSW System.~~ ~~Restore RHRSW subsystem to OPERABLE status.~~	~~7 days~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~D. Both RHRSW subsystems inoperable for reasons other than Condition B.~~	~~NOTE~~ ~~Enter applicable Conditions and Required Actions of LCO 3.4.7 for RHR shutdown cooling made inoperable by RHRSW System.~~ ~~D.1 Restore one RHRSW subsystem to OPERABLE status.~~	~~8 hours~~
~~E. Required Action and associated Completion Time not met.~~	~~E.1 Be in MODE 3.~~ ~~AND~~ ~~E.2 Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.7.1.1~~	~~Verify each RHRSW subsystem power operated and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.~~	~~In accordance with the Surveillance Frequency Control Program~~

Deleted.

3.7 PLANT SYSTEMS

3.7.2 ~~River Water Supply (RWS) System and Ultimate Heat Sink (UHS)~~

~~LCO 3.7.2~~ ~~Two RWS subsystems and UHS shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One RWS subsystem inoperable.~~	~~A.1 Restore the RWS subsystem to OPERABLE status.~~	~~7 days~~
~~B. Required Action and associated Completion Time of Condition A not met.~~ ~~OR~~ ~~Both RWS subsystems inoperable.~~ ~~OR~~ ~~UHS inoperable.~~	~~NOTE~~ ~~Enter applicable Conditions and Required Actions of LCO 3.4.7, "Residual Heat Removal (RHR) Shutdown Cooling System-Hot Shutdown," for RHR shutdown cooling made inoperable by RWS System.~~ ~~B.1 Be in MODE 3.~~ ~~AND~~ ~~B.2 Be in MODE 4.~~	 ~~12 hours~~ ~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.7.2.1~~	~~Verify the river water level is ≥ 725.2 ft mean sea level.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.7.2.2~~	~~Verify the average river water temperature is ≤ 95°F.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.7.2.3~~	~~NOTE~~ ~~Not required to be performed until river depth < 2 feet at the intake structure.~~ ~~Verify the river water depth is ≥ 12 inches.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.7.2.4~~	~~Verify each RWS subsystem power operated and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.7.2.5~~	~~Verify the river water depth ≥ 12 inches.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.7.2.6~~	~~Verify each RWS subsystem actuates on an actual or simulated initiation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~

Deleted

3.7 PLANT SYSTEMS

3.7.3 ~~Emergency Service Water (ESW) System~~

~~LCO 3.7.3~~ ~~Two ESW subsystems shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One ESW subsystem inoperable.~~	~~NOTES~~ ~~1.~~ ~~Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources-Operating," for diesel generator made inoperable by ESW System.~~ ~~2.~~ ~~Enter applicable Conditions and Required Actions of LCO 3.4.7, "Residual Heat Removal (RHR) Shutdown Cooling System-Hot Shutdown," for RHR shutdown cooling made inoperable by ESW System.~~ ~~A.1~~ ~~Restore the ESW subsystem to OPERABLE status.~~	 ~~7 days~~
~~B.~~ ~~Required Action and Associated Completion Time of Condition A not met.~~ ~~OR~~ ~~Both ESW subsystems inoperable.~~	~~B.1~~ ~~Be in MODE 3.~~ ~~AND~~ ~~B.2~~ ~~Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.7.3.1~~	~~NOTE~~ ~~Isolation of flow to individual components does not render ESW System inoperable.~~ ~~Verify each ESW subsystem power operated and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.7.3.2~~	~~Verify each ESW subsystem actuates on an actual or simulated initiation signal.~~	~~In accordance with the Surveillance Frequency Control Program~~

3.7 PLANT SYSTEMS

3.7.4 Standby Filter Unit (SFU) System

LCO 3.7.4 Two SFU subsystems shall be OPERABLE.

---NOTE---
The control building envelope (CBE) boundary may be opened intermittently under administrative control.

APPLICABILITY: ~~MODES 1, 2, and 3,~~
During movement of irradiated fuel assemblies in the secondary containment~~,~~
~~During CORE ALTERATIONS~~.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SFU subsystem inoperable for reasons other than ~~Condition B~~.	A.1 Restore SFU subsystem to OPERABLE status.	7 days
~~B.~~ ~~One or more SFU subsystems inoperable due to inoperable CBE boundary in MODES 1, 2, and 3.~~	~~B.1~~ ~~Initiate actions to implement mitigating actions.~~	~~Immediately~~
	~~AND~~	
	~~B.2~~ ~~Verify mitigating actions ensure CBE occupant exposures to radiological hazards will not exceed limits and verify by administrative means that CBE occupants are protected from smoke and chemical hazards.~~	~~24 hours~~
	~~AND~~	
	~~B.3~~ ~~Restore CBE boundary to OPERABLE status.~~	~~90 days~~

an inoperable CBE boundary

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C.~~ ~~Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.~~	~~C.1~~ ~~Be in MODE 3.~~ ~~AND~~ ~~C.2~~ ~~Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~
B ~~D~~. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment ~~during CORE ALTERATIONS~~.	~~NOTE~~ ~~LCO 3.0.3 is not applicable.~~ ~~D~~.1 Place OPERABLE SFU subsystem in the isolation mode. B OR ~~D~~.2.~~1~~ Suspend movement of irradiated fuel assemblies in the secondary containment. B ~~AND~~ ~~D.2.2 Suspend CORE ALTERATIONS.~~	Immediately Immediately ~~Immediately~~
~~E.~~ ~~Both SFU subsystems inoperable in MODE 1, 2 or 3 for reasons other than Condition B.~~	~~E.1~~ ~~Enter LCO 3.0.3~~	~~Immediately~~

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C ~~F~~. Both SFU subsystems inoperable during movement of irradiated fuel assembles in the secondary containment ~~during CORE ALTERATIONS~~. OR One or more SFU subsystems inoperable due to an inoperable CBE boundary during movement of irradiated fuel assemblies in the secondary containment ~~during CORE ALTERATIONS~~.	~~NOTE~~ ~~LCO 3.0.3 is not applicable.~~ ~~F~~C.1 Suspend movement of irradiated fuel assemblies in the secondary containment. ~~AND~~ ~~F.2 Suspend CORE ALTERATIONS.~~	Immediately ~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each SFU subsystem for $\geq$ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.4.2	Perform required SFU filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.4.3	Verify each SFU subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.4.4	Perform required CBE unfiltered air inleakage testing in accordance with the Control Building Envelope Habitability Program.	In accordance with the Control Building Envelope Habitability Program

3.7 PLANT SYSTEMS

3.7.5 Control Building Chiller (CBC) System

LCO 3.7.5 Two CBC subsystems shall be OPERABLE.

APPLICABILITY: ~~MODES 1, 2, and 3,~~
During movement of irradiated fuel assemblies in the secondary containment~~,~~
~~During CORE ALTERATIONS~~.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CBC subsystem inoperable.	A.1 Restore CBC subsystem to OPERABLE status.	30 days
B. Two CBC subsystems inoperable.	B.1 Verify control building area temperatures < 90°F.	Once per 4 hours
	AND	
	B.2 Restore one CBC subsystem to OPERABLE status.	72 hours
~~C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.~~	~~C.1 Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~C.2 Be in MODE 4.~~	~~36 hours~~

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C ~~D~~. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment ~~during CORE ALTERATIONS~~.	~~NOTE~~ ~~LCO 3.0.3 is not applicable.~~	
	C ~~D~~.1 Place OPERABLE CBC subsystem in operation.	Immediately
	OR	
	C ~~D~~.2~~.1~~ Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	~~AND~~	
	~~D.2.2 Suspend CORE ALTERATIONS.~~	~~Immediately~~

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D ~~E~~. Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies in the secondary containment ~~during CORE ALTERATIONS~~.	~~NOTE~~ ~~LCO 3.0.3 is not applicable.~~	
	D ~~E~~.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	~~AND~~	
	~~E.2 Suspend CORE ALTERATIONS.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each CBC subsystem has the capability to remove the available heat load.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

Deleted

3.7.6 ~~Main Condenser Offgas~~

~~LCO 3.7.6~~ ~~The gross gamma activity rate of the noble gases measured at the Steam Jet Air Ejector (SJAE) offgas pretreatment monitor shall be ≤ 1.0 Ci/second after decay of 30 minutes.~~

~~APPLICABILITY:~~ ~~MODE 1,~~
~~MODES 2 and 3 with any main steam line not isolated and SJAE in operation.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Gross gamma activity rate of the noble gases not within limit.~~	~~A.1~~ ~~Restore gross gamma activity rate of the noble gases to within limit.~~	~~72 hours~~
~~B.~~ ~~Required Action and associated Completion Time not met.~~	~~B.1~~ ~~Isolate all main steam lines.~~	~~12 hours~~
	~~OR~~	
	~~B.2~~ ~~Isolate SJAE.~~	~~12 hours~~
	~~OR~~	
	~~B.3.1~~ ~~Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~B.3.2~~ ~~Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.7.6.1~~	~~NOTE~~ ~~Not required to be performed until 31 days after any main steam line not isolated and SJAE in operation.~~ ~~Verify the gross gamma activity rate of the noble gases is ≤ 1.0 Ci/second after decay of 30 minutes.~~	~~In accordance with the Surveillance Frequency Control Program~~ ~~AND~~ ~~Once within 4 hours after a ≥ 50% increase in the nominal steady state fission gas release after factoring out increases due to changes in THERMAL POWER level~~

3.7 PLANT SYSTEMS

3.7.~~7 The Main Turbine Bypass System~~

Deleted

~~LCO 3.7.7~~ ~~The Main Turbine Bypass System shall be OPERABLE.~~

~~OR~~

~~LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for an inoperable Main Turbine Bypass System, as specified in the COLR, are made applicable.~~

~~APPLICABILITY:~~ ~~THERMAL POWER ≥ 21.7% RTP.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Requirements of the LCO not met.~~	~~A.1~~ ~~Satisfy the requirements of the LCO.~~	~~2 hours~~
~~B.~~ ~~Required Action and associated Completion Time not met.~~	~~B.1~~ ~~Reduce THERMAL POWER to < 21.7% RTP.~~	~~4 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.7.7.1~~	~~Verify one complete cycle of each main turbine bypass valve.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.7.7.2~~	~~Perform a system functional test.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.7.7.3~~	~~Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.~~	~~In accordance with the Surveillance Frequency Control Program~~

3.7 PLANT SYSTEMS

3.7.8 Spent Fuel Storage Pool Water Level

LCO 3.7.8 The spent fuel storage pool water level shall be ≥ 36 ft.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	Verify the spent fuel storage pool water level is ≥ 36 ft.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

Deleted

3.7.9 ~~Control Building/Standby Gas Treatment (CB/SBGT) Instrument Air System~~

~~LCO 3.7.9~~ ~~Two CB/SBGT Instrument Air subsystems shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One CB/SBGT Instrument Air subsystem inoperable.~~	~~A.1 Declare required feature(s), supported by the inoperable CB/SBGT Instrument Air subsystem, inoperable when the redundant required feature(s) are inoperable.~~	~~4 hours from discovery of Condition A concurrent with inoperability of redundant required feature(s)~~
	~~AND~~	
	~~A.2 Restore the CB/SBGT Instrument Air subsystem to OPERABLE status.~~	~~7 days~~
~~B. Required Action and Associated Completion Time of Condition A not met.~~ ~~OR~~ ~~Both CB/SBGT Instrument Air subsystems inoperable.~~	~~B.1 Be in MODE 3.~~	~~12 hours~~
	~~AND~~	
	~~B.2 Be in MODE 4.~~	~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.7.9.1~~	~~Operates each CB/SBGT Instrument Air compressor for ≥ 20 minutes.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.7.9.2~~	~~Verify each CB/SBGT Instrument Air subsystem actuates on an actual or simulated initiation signal and maintains air pressure ≥ 75 psig in the receiver.~~	~~In accordance with the Surveillance Frequency Control Program~~

Deleted

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 ~~AC Sources — Operating~~

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

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

~~b.~~ ~~Two diesel generators (DGs).~~

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

~~ACTIONS~~

~~NOTE~~

~~LCO 3.0.4.b is not applicable to DGs.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One offsite circuit inoperable.~~	~~A.1~~ ~~Perform SR 3.8.1.1 for OPERABLE offsite circuit.~~	~~1 hour~~ ~~AND~~ ~~Once per 24 hours thereafter~~
	~~AND~~	
	~~A.2~~ ~~Restore offsite circuit to OPERABLE status.~~	~~Prior to entering MODE 2 from MODE 3 or 4~~

~~(continued)~~

Amendment

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. One DG inoperable.~~	~~B.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit(s).~~	~~1 hour~~ ~~AND~~ ~~Once per 12 hours thereafter~~
	~~AND~~	
	~~B.2 Declare required feature(s), supported by the inoperable DG, inoperable when the redundant required feature(s) are inoperable.~~	~~4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)~~
	~~AND~~	~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B.~~ ~~(continued)~~	~~B.3~~ ~~Determine OPERABLE DG is not inoperable due to common cause failure.~~ ~~AND~~ ~~NOTE~~ ~~Not required to be performed when the cause of the inoperable DG is pre-planned, preventive maintenance and testing.~~ ~~B.4~~ ~~Perform SR 3.8.1.2 for OPERABLE DG.~~ ~~AND~~ ~~B.5~~ ~~Restore DG to OPERABLE status.~~	~~24 hours~~ ~~Once per 72 hours~~ ~~7 days~~ ~~AND~~ ~~8 days from discovery of failure to meet LCO expect for Condition A~~
~~C.~~ ~~Two offsite circuits inoperable.~~	~~C.1~~ ~~Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.~~	~~12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. (continued)~~	~~AND~~ ~~C.2 Restore one offsite circuit to OPERABLE status.~~	~~24 hours~~ ~~AND~~ ~~8 days from discovery of failure to meet LCO except for Condition A~~
~~D. Two DGs inoperable.~~	~~D.1 Restore one DG 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.~~ ~~AND~~ ~~E.2 Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~
~~F. Three or more AC sources inoperable.~~	~~F.1 Enter LCO 3.0.3.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.8.1.1~~	~~Verify correct breaker alignment and indicated power availability for each offsite circuit.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.1.2~~	~~NOTES~~ ~~1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading.~~ ~~2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.~~ ~~3. When a DG is placed in an inoperable status solely for the performance of testing required by Required Actions B.3 or B.4, entry into associated Conditions and Required Actions may be delayed for up to 2 hours.~~ ~~Verify each DG starts from standby conditions and achieves steady state voltage ≥ 3744v and ≤ 4576v and frequency ≥ 59.5Hz and ≤ 60.5Hz.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.8.1.3~~	~~NOTES~~ ~~1. DG loadings may include gradual loading as recommended by the manufacturer.~~ ~~2. Momentary transients outside the load range do not invalidate this test.~~ ~~3. This Surveillance shall be conducted on only one DG at a time.~~ ~~4. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7.~~ ~~Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 2750kw and ≤ 2950kw.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.1.4~~	~~Verify each tank contains ≥ 220 gal of fuel oil.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.1.5~~	~~Check for the presence of water in the fuel oil in each day tank and remove water as necessary.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.8.1.6~~	~~Verify the fuel oil transfer system operates to transfer fuel oil from storage tank to the day tank.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.1.7~~	~~NOTE~~ ~~All DG starts may be preceded by an engine prelube period.~~ ~~Verify each DG starts from standby condition and achieves:~~ ~~a. in ≤ 10 seconds, voltage ≥ 3744V and frequency ≥ 59.5Hz; and~~ ~~b. steady state, voltage ≥ 3744V and ≤ 4576V and frequency ≥ 59.5Hz and ≤ 60.5Hz.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.1.8~~	~~NOTE~~ ~~The Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR.~~ ~~Verify automatic slow transfer of AC power supply from the Startup Transformer to the Standby Transformer.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.8.1.9~~	~~NOTE~~ ~~This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR.~~ ~~Verify each DG rejects a load greater than or equal to its associated single largest post accident load, and:~~ ~~a. Following load rejection, the frequency is ≤ 64.5Hz.~~ ~~b. Within 1.3 seconds following load rejection, the voltage is ≥ 3744V and ≤ 4576V.~~ ~~c. Within 3.9 seconds following load rejection, the frequency is ≥ 59.5Hz and ≤ 60.5Hz.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.1.10~~	~~NOTE~~ ~~This Surveillance shall not be performed in MODE 1, 2 or 3. However, credit may be taken for unplanned events that satisfy this SR.~~ ~~Verify each DG's automatic trips are bypassed on an actual or simulated Loss of Offsite Power (LOOP) signal or on an actual or simulated ECCS initiation signal except:~~ ~~a. Engine overspeed; and~~ ~~b. Generator lockout.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.8.1.11~~	~~NOTE~~ ~~This Surveillance shall not be performed in MODE 1, 2 or 3. However, credit may be taken for unplanned events that satisfy this SR.~~ ~~Verify under manual control each DG:~~ ~~a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power;~~ ~~b. Transfers loads to offsite power source; and~~ ~~c. Returns to ready-to-load operation.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.1.12~~	~~NOTE~~ ~~This Surveillance shall not be performed in MODE 1, 2 or 3. However, credit may be taken for unplanned events that satisfy this SR.~~ ~~Verify interval between each sequenced load block is ≥ 2 seconds.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.8.1.13~~	~~NOTES~~ ~~1. All DG starts may be preceded by an engine prelube period.~~ ~~2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR.~~ ~~Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal:~~ ~~a. De-energization of essential buses;~~ ~~b. Load shedding from essential buses; and~~ ~~c. DG auto-start from standby condition and:~~ ~~1. energizes permanently connected loads in ≤ 10 seconds,~~ ~~2. energizes auto-connected emergency loads in the proper timed sequence,~~ ~~3. achieves steady state voltage ≥ 3744V and ≤ 4576V,~~ ~~4. achieves steady state frequency ≥ 59.5Hz and ≤ 60.5Hz, and~~ ~~5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.~~	~~In accordance with the Surveillance Frequency Control Program~~

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources ~~— Shutdown~~

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

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems — ~~Shutdown~~"; and

b. One Diesel Generator (DG) capable of supplying one division of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8.

APPLICABILITY: ~~MODES 4 and 5,~~
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

~~NOTE~~
~~LCO 3.0.3 is not applicable.~~

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Condition and Required Actions of LCO 3.8.8, with one required division de-energized as a result of Condition A. --	
	A.1 Declare affected required feature(s), with no offsite power available, inoperable.	Immediately
	<u>OR</u>	
	~~A.2.1~~ ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	A.2.~~2~~ Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	~~AND~~	
	~~A.2.3~~ ~~Initiate action to restore required offsite power circuit to OPERABLE status.~~	~~Immediately~~

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One required DG inoperable.	~~B.1~~	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~		
1	~~B.2~~	Suspend movement of irradiated fuel assemblies in secondary containment	Immediately
	~~AND~~		
	~~B.3~~	~~Initiate action to restore required DG to OPERABLE status.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
~~SR 3.8.2.1~~	~~NOTES~~ ~~1. The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.13.~~ ~~2. SR 3.8.1.13 is considered to be met without the ECCS initiation signals OPERABLE when the ECCS initiation signals are not required to be OPERABLE per Table 3.3.5.1-1.~~	
INSERT 3.8.2-1	~~For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, except SR 3.8.1.8, are applicable.~~	~~In accordance with applicable SRs~~

SR 3.8.2.1	Verify correct breaker alignment and indicated power availability for the required offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.2.2	-----------------------NOTES----------------------- 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.2.7 must be met. --- Verify the required DG starts from standby conditions and achieves steady state voltage $\geq$ 3744V and $\leq$ 4576V and frequency $\geq$ 59.5Hz and $\leq$ 60.5Hz.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.2.3	-----NOTES----- 1. This Surveillance need not be performed. 2. DG loadings may include gradual loading as recommended by the manufacturer. 3. Momentary transients outside the load range do not invalidate this test. 4. This Surveillance shall be conducted on only one DG at a time. 5. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.2.2 or SR 3.8.2.7. ---------- Verify the required DG is synchronized and loaded and operates for $\geq$ 60 minutes at a load $\geq$ 2750kw and $\leq$ 2950kw.	In accordance with the Surveillance Frequency Control Program
SR 3.8.2.4	Verify that the required fuel oil day tank contains $\geq$ 220 gal of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.2.5	Check for the presence of water in the fuel oil in the required day tank and remove water as necessary.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.2.6	Verify the fuel oil transfer system operates to transfer fuel oil from storage tank to the day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.2.7	-------------------------NOTE------------------------- All DG starts may be preceded by an engine prelube period. --- Verify the required DG starts from standby condition and achieves: a. in ≤ 10 seconds, voltage ≥ 3744V and frequency ≥ 59.5Hz; and b. steady state, voltage ≥ 3744V and ≤ 4576V and frequency ≥ 59.5Hz and ≤ 60.5Hz.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.2.8	-----NOTE----- This Surveillance need not be performed. ----- Verify the required DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 64.5Hz. b. Within 1.3 seconds following load rejection, the voltage is ≥ 3744V and ≤ 4576V. c. Within 3.9 seconds following load rejection, the frequency is ≥ 59.5Hz and ≤ 60.5Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.2.9	-----NOTE----- This Surveillance need not be performed. ----- Verify the required DG's automatic trips are bypassed on an actual or simulated Loss of Offsite Power (LOOP) signal except: a. Engine overspeed; and b. Generator lockout.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.2.10	------------------------NOTE------------------------------ This Surveillance need not be performed. -- Verify under manual control the required DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

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

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

------------------------------------NOTE------------------------------------
For Conditions B, E, and F, separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel oil level less than a 7 day supply and greater than a 6 day supply.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory less than a 7 day supply and greater than a 6 day supply.	B.1 Restore lube oil inventory to within limits.	48 hours
C. Stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates to within limits.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. New fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with required starting air receiver pressures < 150 psig and ≥ 75 psig.	E.1 Restore required starting air receiver pressure to within limits.	48 hours
F. Required Action and associated Completion Time not met. <u>OR</u> One or more DGs with diesel fuel oil, lube oil, or starting air subsystems not within limits for reasons other than Condition A, B, C, D, or E.	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify fuel oil storage tank contains a ≥ 7 day supply of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify lube oil inventory is a ≥ 7 day supply for each DG.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify required air start receiver pressure is ≥ 150 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Check for the presence of water in the fuel oil in the fuel oil storage tank and remove water as necessary.	In accordance with the Surveillance Frequency Control Program

Deleted

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 ~~DC Sources — Operating~~

~~LCO 3.8.4~~ ~~Both Division 1 and Division 2 125 VDC electrical power subsystems and the 250 VDC electrical power subsystem shall be OPERABLE.~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One 125 VDC electrical power subsystem inoperable.~~	~~A.1~~ ~~Restore 125 VDC electrical power subsystem to OPERABLE status.~~	~~8 hours~~
~~OR~~ ~~NOTE: May be used on a one-time-only basis for each battery division.~~	~~A.2.1~~ ~~Declare required feature(s), supported by the inoperable 125 VDC source, inoperable when the redundant required feature(s) are inoperable.~~ ~~AND~~ ~~A.2.2~~ ~~Restore 125 VDC electrical power subsystem to OPERABLE status.~~	~~4 hours from discovery of Condition A concurrent with inoperability of redundant required feature(s).~~ ~~10 days~~
~~B.~~ ~~Required Action and Associated Completion Time of Condition A not met.~~	~~B.1~~ ~~Be in MODE 3.~~ ~~AND~~ ~~B.2.~~ ~~Be in MODE 4.~~	~~12 hours~~ ~~36 hours~~
~~C.~~ ~~250 VDC electrical power subsystem inoperable.~~	~~C.1~~ ~~Declare associated supported features inoperable.~~	~~Immediately~~
~~D.~~ ~~Two or more DC electrical power subsystems inoperable.~~	~~D.1~~ ~~Enter LCO 3.0.3.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.8.4.1~~	~~Verify battery terminal voltage is ≥ 130.5 V on float charge for the 125 VDC battery and ≥ 252 V for the 250 VDC battery.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.4.2~~	~~Verify no visible corrosion at battery terminals and connectors.~~ ~~OR~~ ~~Verify battery connection resistance within limits.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.4.3~~	~~Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.4.4~~	~~Remove visible corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.4.5~~	~~Verify battery connection resistance within limits.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
	~~NOTE~~ ~~This Surveillance shall not be performed on the required battery chargers in MODE 1, 2 or 3. However, credit may be taken for unplanned events that satisfy this SR.~~	
~~SR 3.8.4.6~~	~~Verify each required battery charger supplies ≥ 293 amps at ≥ 132.5 V for the 125 VDC subsystem and ≥ 200 amps at ≥ 258 V for the 250 VDC subsystem.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.4.7~~	~~NOTES~~ ~~1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7.~~ ~~2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR.~~	
	~~Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.8.4.8~~	~~NOTE~~ ~~This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR.~~ ~~Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.~~	~~In accordance with the Surveillance Frequency Control Program~~ ~~AND~~ ~~12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating~~ ~~AND~~ ~~24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating~~

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources ~~— Shutdown~~

LCO 3.8.5 DC electrical power subsystems shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems ~~— Shutdown~~."

APPLICABILITY: ~~MODES 4 and 5,~~
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

~~NOTE~~
~~LCO 3.0.3 is not applicable.~~

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	A.2~~.2~~ Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	~~AND~~	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~A. (continued)~~	~~A.2.3 Initiate action to restore required DC electrical power susbsystems to OPERABLE status.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
~~SR 3.8.5.1~~ INSERT 3.8.5-1	~~NOTE~~ ~~The following SRs are not required to be performed: SR 3.8.4.7 and SR 3.8.4.8.~~ ~~For DC electrical power subsystems required to be OPERABLE the following SRs are applicable:~~ ~~SR 3.8.4.1 SR 3.8.4.4 SR 3.8.4.7~~ ~~SR 3.8.4.2 SR 3.8.4.5 SR 3.8.4.8.~~ ~~SR 3.8.4.3 SR 3.8.4.6~~	~~In accordance with applicable SRs~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	Verify battery terminal voltage is ≥ 130.5 V on float charge for the 125 VDC battery.	In accordance with the Surveillance Frequency Control Program
SR 3.8.5.2	Verify no visible corrosion at battery terminals and connectors. <u>OR</u> Verify battery connection resistance within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.5.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	In accordance with the Surveillance Frequency Control Program
SR 3.8.5.4	Remove visible corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	In accordance with the Surveillance Frequency Control Program
SR 3.8.5.5	Verify battery connection resistance within limits.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.5.6	Verify each required battery charger supplies ≥ 293 amps at ≥ 132.5 V for the 125 VDC subsystem.	In accordance with the Surveillance Frequency Control Program
SR 3.8.5.7	-----NOTES----- 1. The modified performance discharge test in SR 3.8.5.8 may be performed in lieu of the service test in SR 3.8.5.7. 2. This Surveillance need not be performed. ---------- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.5.8	-------------------------NOTE------------------------------ This Surveillance need not be performed. --- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program <u>AND</u> 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating <u>AND</u> 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for the Division I and Division II 125 VDC ~~and the 250 VDC~~ batteries shall be within limits.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Table 3.8.6-1 Category A or B limits.	A.1 Verify pilot cell electrolyte level and float voltage meet Table 3.8.6-1 Category C limits.	1 hour
	<u>AND</u>	
	A.2 Verify parameters for required battery cells meet Table 3.8.6-1 Category C limits.	24 hours <u>AND</u> Once per 7 days thereafter
	<u>AND</u>	
	A.3 Restore parameters for required battery cells to Table 3.8.6-1 Category A and B limits.	31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells not within limits. OR One or more batteries with one or more battery cell parameters for required battery cells not within Table 3.8.6-1 Category C limits.	B.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Once within 24 hours after battery discharge < 110 V for 125 V ~~and < 220 V for 250 V~~ <u>AND</u> Once within 24 hours after battery overcharge > 150 V for 125 V ~~and > 300 V for 250 V~~
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 65°F for each battery.	In accordance with the Surveillance Frequency Control Program

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameter Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[a]	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[a]	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity[b][c]	≥ 1.195	≥ 1.190 <u>AND</u> Average of all connected cells > 1.200	Not more than 0.020 below average of all connected cells <u>AND</u> Average of all connected cells ≥ 1.190

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum level during equalizing charges provided it is not overflowing.

(b) Corrected for electrolyte temperature and level. Level correction is not required, however, when on float charge and battery charging current is < 2 amps.

(c) A battery charging current of < 2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

3.8 ELECTRICAL POWER SYSTEMS

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3.8.7 ~~Distribution Systems — Operating~~

~~LCO 3.8.7~~ ~~The following AC and DC electrical power distribution subsystems shall be OPERABLE:~~

~~a. Division 1 and Division 2 AC electrical power distribution subsystems;~~

~~b. Division 1 and Division 2 125 VDC electrical power distribution subsystems;~~

~~c. 250 VDC electrical power distribution subsystem;~~

~~d. Intake structure electrical power distribution subsystems; and~~

~~e. 125 VDC RCIC Motor Control Center (MCC).~~

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

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One or more AC electrical power distribution subsystems inoperable, except for the intake structure electrical power distribution subsystems.~~	~~A.1 Restore AC electrical power distribution subsystems to OPERABLE status.~~	~~8 hours~~ ~~AND~~ ~~16 hours from discovery of failure to meet LCO 3.8.7.a or b~~
~~B. One or more essential 125 VDC electrical power distribution subsystems inoperable except for the RCIC MCC.~~	~~B.1 Restore the 125 VDC electrical power distribution subsystems to OPERABLE status.~~	~~8 hours~~ ~~AND~~ ~~16 hours from discovery of failure to meet LCO 3.8.7.a or b~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~		~~REQUIRED ACTION~~		~~COMPLETION TIME~~
~~C.~~	~~Required Action and associated Completion Time of Condition A or B not met.~~	~~C.1~~	~~Be in MODE 3.~~	~~12 hours~~
		~~AND~~		
		~~C.2~~	~~Be in MODE 4.~~	~~36 hours~~
~~D.~~	~~One or both intake structure electrical power distribution subsystem(s) inoperable.~~	~~D.1~~	~~Declare the associated River Water Supply subsystem(s) inoperable.~~	~~Immediately~~
~~E.~~	~~250 VDC electrical power distribution subsystem inoperable.~~	~~E.1~~	~~Declare associated supported features inoperable.~~	~~Immediately~~
~~F.~~	~~125 VDC RCIC MCC inoperable.~~	~~F.1~~	~~Declare associated supported features inoperable.~~	~~Immediately~~
~~G.~~	~~Two or more electrical power distribution subsystems inoperable that result in a loss of function, for reasons other than Condition D.~~	~~G.1~~	~~Enter LCO 3.0.3.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.8.7.1~~	~~Verify correct breaker alignments and indicated power availability to required AC and DC electrical power distribution subsystems.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.8.7.2~~	~~Verify proper coordination of the LPCI Swing Bus circuit breakers.~~	~~In accordance with the Surveillance Frequency Control Program~~

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Distribution Systems ~~— Shutdown~~

LCO 3.8.8 The necessary portions of the AC and DC electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: ~~MODES 4 and 5.~~
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

~~NOTE~~
~~LCO 3.0.3 is not applicable.~~

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC or DC electrical power distribution subsytems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	OR	
	~~A.2.1~~ ~~Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	A.2~~.2~~ Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	~~AND~~	
	~~A.2.3~~ ~~Initiate action to restore required AC and DC electrical power distribution subsystems to OPERABLE status.~~	~~Immediately~~
	~~AND~~	~~(continued)~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~A. (continued)~~	~~A.2.4 Declare associated required shutdown cooling subsystem(s) inoperable.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct breaker alignments and indicated power availability to required AC and DC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

DELETED

3.9 ~~REFUELING OPERATIONS~~

~~3.9.1 Refueling Equipment Interlocks~~

~~LCO 3.9.1~~ ~~The refueling equipment interlocks associated with the Refuel position shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~During in-vessel fuel movement with equipment associated with the interlocks when the reactor mode switch is in the Refuel position.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more required refueling equipment interlocks inoperable.~~	~~A.1~~ ~~Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s).~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.9.1.1~~	~~Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs:~~ ~~a.~~ ~~All rods in,~~ ~~b.~~ ~~Refuel platform position,~~ ~~c.~~ ~~Refuel platform fuel grapple, fuel loaded,~~ ~~d.~~ ~~Refuel platform fuel grapple fully retracted position,~~ ~~e.~~ ~~Refuel platform frame mounted hoist, fuel loaded, and~~ ~~f.~~ ~~Refuel platform monorail mounted hoist, fuel loaded.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.9 REFUELING OPERATIONS~~

~~3.9.2 Refuel Position One-Rod-Out Interlock~~

~~LCO 3.9.2~~ ~~The refuel position one-rod-out interlock shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODE 5 with the reactor mode switch in the Refuel position and any control rod withdrawn.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Refuel position one-rod-out interlock inoperable.~~	~~A.1~~ ~~Suspend control rod withdrawal.~~ ~~AND~~ ~~A.2.~~ ~~Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.~~	~~Immediately~~ ~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.9.2.1~~	~~Verify reactor mode switch locked in Refuel position.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.9.2.2~~	~~NOTE~~ ~~Not required to be performed until 1 hour after any control rod is withdrawn.~~ ~~Perform CHANNEL FUNCTIONAL TEST.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.9 REFUELING OPERATIONS~~

~~3.9.3 Control Rod Position~~

~~LCO 3.9.3~~ ~~All control rods shall be fully inserted.~~

~~APPLICABILITY:~~ ~~When loading fuel assemblies into the core.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more control rods not fully inserted.~~	~~A.1~~ ~~Suspend loading fuel assemblies into the core.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.9.3.1~~	~~Verify all control rods are fully inserted.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.9 REFUELING OEPRATIONS~~

~~3.9.4 Control Rod Position Indication~~

~~LCO 3.9.4~~ ~~The control rod "full in" position indication for each control rod shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODE 5.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each required position indication.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more required control rod position indications inoperable.~~	~~A.1.1~~ ~~Suspend in-vessel fuel movement.~~	~~Immediately~~
	~~AND~~	
	~~A.1.2~~ ~~Suspend control rod withdrawal.~~	~~Immediately~~
	~~AND~~	
	~~A.1.3~~ ~~Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.~~	~~Immediately~~
	~~OR~~	

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. (continued)~~	~~A.2.1 Initiate action to fully insert the control rod associated with the inoperable position indicator.~~ ~~AND~~ ~~A.2.2 Initiate action to disarm the control rod drive associated with the fully inserted control rod.~~	~~Immediately~~ ~~Immediately~~

~~SURVEILLANCE REQUIREMENT~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.9.4.1~~	~~Verify the required position indication has no "full in" indication on each control rod that is not "full in."~~	~~Each time the control rod is withdrawn from the "full in" position~~

~~3.9 REFUELING OPERATIONS~~

~~3.9.5 Control Rod OPERABILITY — Refueling~~

~~LCO 3.9.5~~ ~~Each withdrawn control rod shall be OPERABLE.~~

~~APPLICABILITY:~~ ~~MODE 5.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One or more withdrawn control rods inoperable.~~	~~A.1 Initiate action to fully insert inoperable withdrawn control rods.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.9.5.1~~	~~NOTE~~ ~~Not required to be performed until 7 days after the control rod is withdrawn.~~ ~~Insert each withdrawn control rod at least one notch.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.9.5.2~~	~~Verify each withdrawn control rod scram accumulator pressure is ≥ 940 psig.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.9 REFUELING OPERATIONS~~

~~3.9.6 Reactor Pressure Vessel (RPV) Water Level~~

~~LCO 3.9.6~~ ~~RPV water level shall be ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.~~

~~APPLICABILITY:~~ ~~During movement of irradiated fuel assemblies within the RPV,~~
~~During movement of new fuel assemblies or handling of control rods within the RPV, when irradiated fuel assemblies are seated within the RPV.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~RPV water level not within limit.~~	~~A.1~~ ~~Suspend movement of fuel assemblies and handling of control rods within the RPV.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.9.6.1~~	~~Verify RPV water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.9 REFUELING OPERATIONS~~

~~3.9.7 Residual Heat Removal (RHR)—High Water Level~~

~~LCO 3.9.7~~ ~~One RHR shutdown cooling subsystem shall be OPERABLE; and in operation when reactor coolant temperature ≥ 150 °F.~~

~~NOTE~~

~~The required RHR shutdown cooling subsystem may not be in operation for up to 2 hours per 8 hour period.~~

~~APPLICABILITY:~~ ~~MODE 5 with irradiated fuel in the Reactor Pressure Vessel (RPV) and the water level ≥ 21 ft 1 inch above the top of the RPV flange.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Required RHR shutdown cooling subsystem inoperable.~~	~~A.1~~ ~~Verify by administrative means an alternate method of decay heat removal is available.~~	~~1 hour~~ ~~AND~~ ~~Once per 24 hours thereafter~~
~~B.~~ ~~Required Action and associated Completion Time of Condition A not met.~~	~~B.1~~ ~~Suspend loading irradiated fuel assemblies into the RPV.~~ ~~AND~~	~~Immediately~~

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. (continued)~~	~~B.2 Initiate action to restore secondary containment to OPERABLE status.~~	~~Immediately~~
	~~AND~~	
	~~B.3 Initiate action to restore one standby gas treatment subsystem to OPERABLE status.~~	~~Immediately~~
	~~AND~~	
	~~B.4 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.~~	~~Immediately~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. No RHR shutdown cooling subsystem in operation with reactor coolant temperature ≥ 150°F.~~	~~C.1 Verify reactor coolant circulation by an alternate method.~~	~~1 hour from discovery of no reactor coolant circulation~~ ~~AND~~ ~~Once per 12 hours thereafter~~
	~~AND~~ ~~C.2 Monitor reactor coolant temperature.~~	~~Once per hour~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.9.7.1~~	~~Verify one RHR shutdown cooling subsystem is operating when reactor coolant temperature is ≥ 150 °F.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.9.7.2~~	~~Verify required RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.9 REFUELING OPERATIONS~~

~~3.9.8 Residual Heat Removal (RHR)—Low Water Level~~

~~LCO 3.9.8~~ ~~Two RHR shutdown cooling subsystems shall be OPERABLE, and one RHR shutdown cooling subsystem shall be in operation.~~

~~NOTE~~

~~The required operating shutdown cooling subsystem may not be in operation for up to 2 hours per 8 hour period.~~

~~APPLICABILITY:~~ ~~MODE 5 with irradiated fuel in the Reactor Pressure Vessel (RPV) and the water level < 21 ft 1 inch above the top of the RPV flange.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or two required RHR shutdown cooling subsystems inoperable.~~	~~A.1~~ ~~Verify by administrative means an alternate method of decay heat removal is available for each inoperable required RHR shutdown cooling subsystem.~~	~~1 hour~~ ~~AND~~ ~~Once per 24 hours thereafter~~
~~B.~~ ~~Required Action and associated Completion Time of Condition A not met.~~	~~B.1~~ ~~Initiate action to restore secondary containment to OPERABLE status.~~ ~~AND~~	~~Immediately~~

~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B.~~ ~~(continued)~~	~~B.2~~ ~~Initiate action to restore one standby gas treatment subsystem to OPERABLE status.~~	~~Immediately~~
	~~AND~~	
	~~B.3~~ ~~Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.~~	~~Immediately~~
~~C.~~ ~~No RHR shutdown cooling subsystem in operation.~~	~~C.1~~ ~~Verify reactor coolant circulation by an alternate method.~~	~~1 hour from discovery of no reactor coolant circulation~~ ~~AND~~ ~~Once per 12 hours thereafter~~
	~~AND~~	
	~~C.2~~ ~~Monitor reactor coolant temperature.~~	~~Once per hour~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.9.8.1~~	~~Verify one RHR shutdown cooling subsystem is operating.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.9.8.2~~	~~Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.~~	~~In accordance with the Surveillance Frequency Control Program~~

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3.10 ~~SPECIAL OPERATIONS~~

~~3.10.1 System Leakage and Hydrostatic Testing Operation~~

~~LCO 3.10.1~~ ~~The average reactor coolant temperature specified in Table 1.1-1 for MODE 4 may be changed to "NA," and operation considered not to be in MODE 3; and the requirements of LCO 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System — Cold Shutdown," may be suspended, to allow reactor coolant temperature > 212°F:~~

- ~~For performance of a system leakage or hydrostatic test,~~
- ~~As a consequence of maintaining adequate pressure for a system leakage or hydrostatic test, or~~
- ~~As a consequence of maintaining adequate pressure for control rod scram time testing initiated in conjunction with a system leakage or hydrostatic test,~~

~~provided the following MODE 3 LCOs are met:~~

~~a.~~ ~~LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation," Functions 1, 3, and 4 of Table 3.3.6.2-1;~~

~~b.~~ ~~LCO 3.6.4.1, "Secondary Containment";~~

~~c.~~ ~~LCO 3.6.4.2, "Secondary Containment Isolation Valves/Dampers (SCIV/Ds)"; and~~

~~d.~~ ~~LCO 3.6.4.3, "Standby Gas Treatment (SBGT) System."~~

~~APPLICABILITY:~~ ~~MODE 4 with average reactor coolant temperature > 212°F.~~

~~ACTIONS~~

~~NOTE~~
~~Separate Condition entry is allowed for each requirement of the LCO.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One or more of the above requirements not met.~~	~~A.1~~ ~~NOTE~~ ~~Required Actions to be in MODE 4 include reducing average reactor coolant temperature to $\leq$ 212°F.~~	
	~~Enter the applicable Condition of the affected LCO.~~	~~Immediately~~
	~~OR~~	
	~~A.2.1 Suspend activities that could increase the average reactor coolant temperature or pressure.~~	~~Immediately~~
	~~AND~~	
	~~A.2.2 Reduce average reactor coolant temperature to $\leq$ 212°F.~~	~~24 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.10.1.1~~	~~Perform the applicable SRs for the required MODE 3 LCOs.~~	~~According to the applicable SRs~~

~~3.10 SPECIAL OPERATIONS~~

~~3.10.2 Reactor Mode Switch Interlock Testing~~

~~LCO 3.10.2~~ ~~The reactor mode switch position specified in Table 1.1-1 for MODES 3, 4, and 5 may be changed to include the Run, Startup/Hot Standby, and Refuel position, and operation considered not to be in MODE 1 or 2, to allow testing of instrumentation associated with the reactor mode switch interlock functions, provided:~~

~~a. All control rods remain fully inserted in core cells containing one or more fuel assemblies; and~~

~~b. No CORE ALTERATIONS are in progress.~~

~~APPLICABILITY:~~ ~~MODES 3 and 4 with the reactor mode switch in the Run, Startup/Hot Standby, or Refuel position,~~
~~MODE 5 with the reactor mode switch in the Run or Startup/Hot Standby position.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.1 One or more of the above requirements not met.~~	~~A.1 Suspend CORE ALTERATIONS except for control rod insertion.~~	~~Immediately~~
	~~AND~~	
	~~A.2 Fully insert all insertable control rods in core cells containing one or more fuel assemblies.~~	~~1 hour~~
	~~AND~~	
		~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. (continued)~~	~~A.3.1 Place the reactor mode switch in the Shutdown position.~~ ~~OR~~ ~~A.3.2 ----- NOTE -----~~ ~~Only applicable in MODE 5.~~ ---------- ~~Place the reactor mode switch in the Refuel position.~~	~~1 hour~~ ~~1 hour~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.10.2.1~~	~~Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.10.2.2~~	~~Verify no CORE ALTERATIONS are in progress.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.10 SPECIAL OPERATIONS~~

~~3.10.3 Single Control Rod Withdrawal — Hot Shutdown~~

~~LCO 3.10.3~~ ~~The reactor mode switch position specified in Table 1.1-1 for MODE 3 may be changed to include the Refuel position, and operation considered not to be in MODE 2, to allow withdrawal of a single control rod, provided the following requirements are met:~~

~~a.~~ ~~LCO 3.9.2, "Refuel Position One-Rod-Out Interlock";~~

~~b.~~ ~~LCO 3.9.4, "Control Rod Position Indication";~~

~~c.~~ ~~All other control rods are fully inserted; and~~

~~d.~~ ~~1.~~ ~~LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," MODE 5 requirements for Functions 1.a, 1.b, 7.a, 7.b, 10, and 11 of Table 3.3.1.1-1,~~

~~LCO 3.3.8.2, "Reactor Protection System (RPS) Electric Power Monitoring," and~~

~~LCO 3.9.5, "Control Rod OPERABILITY — Refueling,"~~

~~OR~~

~~2.~~ ~~All other control rods in a five by five array centered on the control rod being withdrawn are disarmed; at which time LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," MODE 3 requirements, may be changed to allow the single control rod withdrawn to be assumed to be the highest worth control rod.~~

~~APPLICABILITY:~~ ~~MODE 3 with the reactor mode switch in the Refuel position.~~

~~ACTIONS~~

~~NOTE~~

~~Separate Condition entry is allowed for each requirement of the LCO.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.1 One or more of the above requirements not met.~~	~~A.1~~ ~~NOTES~~ ~~1. Required Actions to fully insert all insertable control rods including placing the reactor mode switch in the Shutdown position.~~ ~~2. Only applicable if the requirement not met is a required LCO.~~ --- ~~Enter the applicable Condition of the affected LCO.~~	~~Immediately~~
	~~OR~~	
	~~A.2.1 Initiate action to fully insert all insertable control rods.~~	~~Immediately~~
	~~AND~~	
	~~A.2.2 Place the reactor mode switch in the Shutdown position.~~	~~1 hour~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.10.3.1~~	~~Perform the applicable SRs for the required LCOs.~~	~~According to the applicable SRs~~
~~SR 3.10.3.2~~	~~NOTE~~ ~~Not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.d.1 requirements.~~ ~~Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.10.3.3~~	~~Verify all control rods, other than the control rod being withdrawn, are fully inserted.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.10 SPECIAL OPERATIONS~~

~~3.10.4 Single Control Rod Withdrawal — Cold Shutdown~~

~~LCO 3.10.4~~ ~~The reactor mode switch position specified in Table 1.1-1 for MODE 4 may be changed to include the Refuel position, and operation considered not to be in MODE 2, to allow withdrawal of a single control rod, and subsequent removal of the associated Control Rod Drive (CRD) if desired, provided the following requirements are met:~~

~~a.~~ ~~All other control rods are fully inserted;~~

~~b.~~ ~~1.~~ ~~LCO 3.9.2, "Refuel Position One-Rod-Out Interlock," and~~

~~LCO 3.9.4, "Control Rod Position Indication,"~~

~~OR~~

~~2.~~ ~~A control rod withdrawal block is inserted;~~

~~c.~~ ~~1.~~ ~~LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," MODE 5 requirements for Functions 1.a, 1.b, 7.a, 7.b, 10, and 11 of Table 3.3.1.1-1,~~

~~LCO 3.3.8.2, "Reactor Protection System (RPS) Electric Power Monitoring," and~~

~~LCO 3.9.5, "Control Rod OPERABILITY — Refueling,"~~

~~OR~~

~~2.~~ ~~All other control rods in a five by five array centered on the control rod being withdrawn are disarmed; at which time LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," MODE 4 requirements, may be changed to allow the single control rod withdrawn to be assumed to be the highest worth control rod.~~

~~APPLICABILITY:~~ ~~MODE 4 with the reactor mode switch in the Refuel position.~~

~~ACTIONS~~

~~NOTE~~
~~Separate Condition entry is allowed for each requirement of the LCO.~~

~~CONDITION~~	~~REQUIRED ACTION~~		~~COMPLETION TIME~~
~~A. One or more of the above requirements not met with the affected control rod insertable.~~	~~A.1~~	~~NOTES~~ ~~1. Required Actions to fully insert all insertable control rods include placing the reactor mode switch in the Shutdown position.~~ ~~2. Only applicable if the requirement not met is a required LCO.~~ --- ~~Enter the applicable Condition of the affected LCO.~~	~~Immediately~~
	~~OR~~		
	~~A.2.1~~	~~Initiate action to fully insert all insertable control rods.~~	~~Immediately~~
	~~AND~~		
	~~A.2.2~~	~~Place the reactor mode switch in the Shutdown position.~~	~~1 hour~~

~~(continued)~~

~~ACTIONS (continued)~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~B. One or more of the above requirements not met with the affected control rod not insertable.~~	~~B.1 Suspend withdrawal of the control rod and removal of associated CRD.~~	~~Immediately~~
	~~AND~~	
	~~B.2.1 Initiate action to fully insert all control rods.~~	~~Immediately~~
	~~OR~~	
	~~B.2.2 Initiate action to satisfy the requirements of this LCO.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.10.4.1~~	~~Perform the applicable SRs for the required LCOs.~~	~~According to the applicable SRs~~
~~SR 3.10.4.2~~	~~NOTE~~ ~~Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.c.1 requirements.~~ ~~Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.10.4.3~~	~~Verify all control rods, other than the control rod being withdrawn, are fully inserted.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.10.4.4~~	~~NOTE~~ ~~Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.b.1 requirements.~~ ~~Verify a control rod withdrawal block is inserted.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.10 SPECIAL OPERATIONS~~

~~3.10.5 Single Control Rod Drive (CRD) Removal — Refueling~~

~~LCO 3.10.5~~ ~~The requirements of LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation"; LCO 3.3.8.2, "Reactor Protection System (RPS) Electric Power Monitoring"; LCO 3.9.1, "Refueling Equipment Interlocks"; LCO 3.9.2, "Refuel Position One-Rod-Out Interlock"; LCO 3.9.4, "Control Rod Position Indication"; and LCO 3.9.5, "Control Rod OPERABILITY — Refueling," may be suspended in MODE 5 to allow the removal of a single CRD associated with a control rod withdrawn from a core cell containing one or more fuel assemblies, provided the following requirements are met:~~

~~a.~~ ~~All other control rods are fully inserted;~~

~~b.~~ ~~All other control rods in a five by five array centered on the withdrawn control rod are disarmed;~~

~~c.~~ ~~A control rod withdrawal block is inserted and LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," MODE 5 requirements may be changed to allow the single control rod withdrawn to be assumed to be the highest worth control rod; and~~

~~d.~~ ~~No other CORE ALTERATIONS are in progress.~~

~~APPLICABILITY: MODE 5 with LCO 3.9.5 not met.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. One or more of the above requirements not met.~~	~~A.1 Suspend removal of the CRD mechanism.~~ ~~AND~~	~~Immediately~~ ~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~(continued)~~	~~A.2.1~~ ~~Initiate action to fully insert all control rods.~~	~~Immediately~~
	~~OR~~	
	~~A.2.2~~ ~~Initiate action to satisfy the requirements of this LCO.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.10.5.1~~	~~Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, are fully inserted.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.10.5.2~~	~~Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, in a five by five array centered on the control rod withdrawn for the removal of the associated CRD, are disarmed.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.10.5.3~~	~~Verify a control rod withdrawal block is inserted.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.10.5.4~~	~~Perform SR 3.1.1.1.~~	~~According to SR 3.1.1.1~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.10.5.5~~	~~Verify no other CORE ALTERATIONS are in progress.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.10 SPECIAL OPERATIONS~~

~~3.10.6 Multiple Control Rod Withdrawal — Refueling~~

~~LCO 3.10.6~~ ~~The requirements of LCO 3.9.3, "Control Rod Position"; LCO 3.9.4, "Control Rod Position Indication"; and LCO 3.9.5, "Control Rod OPERABILITY — Refueling," may be suspended, and the "full in" position indicators may be bypassed for any number of control rods in MODE 5, to allow withdrawal of these control rods, removal of associated Control Rod Drives (CRDs), or both, provided the following requirements are met:~~

~~a.~~ ~~The four fuel assemblies are removed from the core cells associated with each control rod or CRD to be removed;~~

~~b.~~ ~~All other control rods in core cells containing one or more fuel assemblies are fully inserted; and~~

~~c.~~ ~~Fuel assemblies shall only be loaded in compliance with an approved reload sequence.~~

~~APPLICABILITY:~~ ~~MODE 5 with LCO 3.9.3, LCO 3.9.4, or LCO 3.9.5 not met.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~One or more of the above requirements not met.~~	~~A.1~~ ~~Suspend withdrawal of control rods and removal of associated CRDs.~~	~~Immediately~~
	~~AND~~	
	~~A.2~~ ~~Suspend loading fuel assemblies.~~	~~Immediately~~
	~~AND~~	
		~~(continued)~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. (continued)~~	~~A.3.1 Initiate action to fully insert all control rods in core cells containing one or more fuel assemblies.~~	~~Immediately~~
	~~OR~~	
	~~A.3.2 Initiate action to satisfy the requirements of this LCO.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

	~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.10.6.1~~	~~Verify the four fuel assemblies are removed from core cells associated with each control rod or CRD removed.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.10.6.2~~	~~Verify all other control rods in core cells containing one or more fuel assemblies are fully inserted.~~	~~In accordance with the Surveillance Frequency Control Program~~
~~SR 3.10.6.3~~	~~NOTE~~ ~~Only required to be met during fuel loading.~~ ~~Verify fuel assemblies being loaded are in compliance with an approved reload sequence.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~3.10 SPECIAL OPERATIONS~~

~~3.10.7 Control Rod Testing — Operating~~

~~LCO 3.10.7~~ ~~The requirements of LCO 3.1.6, "Rod Pattern Control," may be suspended to allow performance of SDM demonstrations, control rod scram time testing, and control rod friction testing, provided:~~

~~a.~~ ~~The Banked Position Withdrawal Sequence requirements of SR 3.3.2.1.7 are changed to require the control rod sequence to conform to the specified test sequence.~~

~~OR~~

~~b.~~ ~~The RWM is bypassed; the requirements of LCO 3.3.2.1, "Control Rod Block Instrumentation," Function 2 are suspended; and conformance to the approved control rod sequence for the specified test is verified by a second licensed operator or other qualified member of the technical staff.~~

~~APPLICABILITY:~~ ~~MODES 1 and 2 with LCO 3.1.6 not met.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~Requirements of the LCO not met.~~	~~A.1~~ ~~Suspend performance of the test and exception to LCO 3.1.6.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.10.7.1~~	~~NOTE~~ ~~Not required to be met if SR 3.10.7.2 satisfied.~~ ~~Verify movement of control rods is in compliance with the approved control rod sequence for the specified test by a second licensed operator or other qualified member of the technical staff.~~	~~During control rod movement~~
~~SR 3.10.7.2~~	~~NOTE~~ ~~Not required to be met if SR 3.10.7.1 satisfied.~~ ~~Verify control rod sequence input to the RWM is in conformance with the approved control rod sequence for the specified test.~~	~~Prior to control rod movement~~

~~3.10 SPECIAL OPERATIONS~~

~~3.10.8 SHUTDOWN MARGIN (SDM) Test — Refueling~~

~~LCO 3.10.8~~ ~~The reactor mode switch position specified in Table 1.1-1 for MODE 5 may be changed to include the Startup/Hot Standby position, and operation considered not to be in MODE 2, to allow SDM testing, provided the following requirements are met:~~

~~a.~~ ~~LCO 3.3.1.1, "Reactor Protection System Instrumentation," MODE 2 requirements for Functions 2.a and 2.d of Table 3.3.1.1-1;~~

~~b.~~ ~~1.~~ ~~LCO 3.3.2.1, "Control Rod Block Instrumentation," MODE 2 requirements for Function 2 of Table 3.3.2.1-1, with the Banked Position Withdrawal Sequence requirements of SR 3.3.2.1.7 changed to require the control rod sequence to conform to the SDM test sequence,~~

~~OR~~

~~2.~~ ~~Conformance to the approved control rod sequence for the SDM test is verified by a second licensed operator or other qualified member of the technical staff;~~

~~c.~~ ~~Each withdrawn control rod shall be coupled to the associated CRD;~~

~~d.~~ ~~All control rod withdrawals during out of sequence control rod moves shall be made in notch out mode;~~

~~e.~~ ~~No other CORE ALTERATIONS are in progress; and~~

~~f.~~ ~~CRD charging water header pressure ≥ 970 psig.~~

~~APPLICABILITY:~~ ~~MODE 5 with the reactor mode switch in Startup/Hot Standby position.~~

~~ACTIONS~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A.~~ ~~NOTE~~ ~~Separate Condition entry is allowed for each control rod.~~ ~~One or more control rods not coupled to its associated CRD.~~	~~NOTE~~ ~~Rod Worth Minimizer may be bypassed as allowed by LCO 3.3.2.1, "Control Rod Block Instrumentation," if required, to allow insertion of inoperable control rod and continued operation.~~	
	~~A.1~~ ~~Fully insert inoperable control rod.~~	~~3 hours~~
	~~AND~~	
	~~A.2~~ ~~Disarm the associated CRD.~~	~~4 hours~~
~~B.~~ ~~One or more of the LCO requirements not met for reasons other than Condition A.~~	~~B.1~~ ~~Place the reactor mode switch in the Shutdown or Refuel position.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.10.8.1~~	~~Perform the MODE 2 applicable SRs for LCO 3.3.1.1, Functions 2.a and 2.d of Table 3.3.1.1-1.~~	~~According to the applicable SRs~~
~~SR 3.10.8.2~~	~~NOTE~~ ~~Not required to be met if SR 3.10.8.3 satisfied.~~ ~~Perform the MODE 2 applicable SRs for LCO 3.3.2.1, Function 2 of Table 3.3.2.1-1.~~	~~According to the applicable SRs~~
~~SR 3.10.8.3~~	~~NOTE~~ ~~Not required to be met if SR 3.10.8.2 satisfied.~~ ~~Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.~~	~~During control rod movement~~
~~SR 3.10.8.4~~	~~Verify no other CORE ALTERATIONS are in progress.~~	~~In accordance with the Surveillance Frequency Control Program~~

~~(continued)~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.10.8.5~~	~~Verify each withdrawn control rod does not go to the withdrawn overtravel position.~~	~~Each time the control rod is withdrawn to "full out" position~~ ~~AND~~ ~~Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling~~
~~SR 3.10.8.6~~	~~Verify CRD charging water header pressure ≥ 970 psig.~~	~~In accordance with the Surveillance Frequency Control Program~~

4.0 DESIGN FEATURES

4.1 Site Location

The plant site, which consists of approximately 500 acres, is adjacent to the Cedar River approximately 2.5 miles northeast of the Village of Palo, Iowa. ~~Distance from the reactor centerline to the nearest site boundary is approximately 2000 ft.~~ The boundary of the exclusion area defined in 10 CFR 100 is delineated by the property lines. The distance to the outer boundary of the low population zone is 6 miles. The plan of the site is shown on UFSAR Figures 1.2-1 and 1.2-2.

Deleted

4.2 ~~Reactor Core~~

~~4.2.1 Fuel Assemblies~~

~~The reactor shall consist of not more than 368 fuel assemblies. Each assembly shall consist of a matrix of Zircalloy or ZIRLO fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material, and water rods. Limited substitution of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with NRC staff approved codes and methods and have been shown by tests or analyses to comply with all safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.~~

~~4.2.2 Control Rod Assemblies~~

~~The reactor core shall contain 89 cruciform shaped control rod assemblies. The control materials shall be boron carbide and hafnium metal, as approved by the NRC.~~

(continued)

4.0 DESIGN FEATURES (continued)

4.3 Fuel Storage

4.3.1 Criticality

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

a. Fuel assemblies having the following limits for maximum k-infinity in the normal reactor core configuration at cold conditions and maximum lattice-average U-235 enrichment weight percent:

	k-∞	wt %
i) 7x7 and 8x8 pin arrays (Legacy Fuel Assemblies only; Holtec and PaR racks)	≤ 1.29	≤ 4.6
ii) 10x10 pin arrays (Holtec and PaR racks)	≤ 1.29	≤ 4.95

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

c. A nominal 6.060 inches for HOLTEC designed and 6.625 inches for PaR designed center to center distance between fuel assemblies placed in the storage racks.

d. The Boral neutron absorber shall have a ^{10}B areal density greater than or equal to 0.0162 grams $^{10}B/cm^2$ with an uncertainty of 0.0012 grams $^{10}B/cm^2$.

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

~~a.~~ ~~Fuel assemblies having a maximum k infinity of 1.31 in the normal reactor core configuration at cold conditions;~~

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

~~c.~~ ~~$k_{eff} \leq 0.90$ if dry, which includes an allowance for uncertainties as described in Section 9.1 of the UFSAR; and~~

~~d.~~ ~~A nominal 6.625 inch center to center distance between fuel assemblies placed in storage racks.~~

(continued)

4.0 DESIGN FEATURES (continued)

4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 831 ft. – 2 3/4 in.

4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 2563 fuel assemblies in a vertical orientation, including no more than 152 fuel assemblies stored in the cask pit in accordance with UFSAR Section 9.1.

~~The new fuel storage vault is equipped with racks for storage of up to 110 fuel assemblies in a vertical orientation.~~

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

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

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

5.1.2 The Operations Shift Manager shall be responsible for the control room command function. During any absence of the Operations Shift Manager from the control room while the unit is in MODE 1, 2, or 3, 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 Operations Shift Manager from the control room while the unit is in MODE 4 or 5, an individual with an active SRO license or Reactor Operator license shall be designed 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 the Technical Specifications shall be documented in the UFSAR or QA Program Description;

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

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

(continued)

5.2 Organization (continued)

5.2.2 Unit Staff

The unit staff organization shall also include the following:

a. A non-licensed operator shall be assigned to the reactor when containing fuel and an additional non-licensed operator shall be assigned to the reactor when operating in MODES 1, 2, or 3.

b. Shift crew composition shall meet the requirements stipulated herein and in 10 CFR 50.54(m).

c. 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.g 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.

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

e. Not used.

f. The Operations Manager or Operations Supervisors shall hold an SRO license.

(continued)

5.2 Organization

5.2.2 Unit Staff (continued)

g. 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. This function is not required in MODES 4 and 5.

5.0 ADMINISTRATIVE CONTROLS

5.3 Unit Staff Qualifications

5.3.1 Each member of the unit staff shall meet or exceed the minimum qualifications referenced for comparable positions in ANSI/ANS 3.1-1978. The radiation protection manager shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975.

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 TS 5.3.1, perform the functions described in 10 CFR 50.54(m).

5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

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

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

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

c. Quality assurance for effluent and environmental monitoring;

d. [Deleted]; and

e. All programs specified in Specifications 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 Assessment Manual (ODAM)

a. The ODAM 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 ODAM 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 Report and Radioactive Material Release Report required by Specification 5.6.2 and Specification 5.6.3.

c. Licensee initiated changes to the ODAM:

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

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

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

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

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

(continued)

5.5 Programs and Manuals

5.5.1 Offsite Dose Assessment Manual (ODAM) (continued)

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.

5.5.2 ~~Primary Coolant Sources Outside Containment~~

Deleted

~~This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include Core Spray, High Pressure Coolant Injection, Residual Heat Removal, Reactor Core Isolation Cooling, Reactor Water Cleanup (only to second isolation valve). Post Accident Sampling (until such time as a modification eliminates PASS as a potential leakage path), Containment Atmospheric Monitoring, Control Rod Drive (scram discharge volume only) and Liquid Radwaste (only Reactor Building Floor and Equipment Drain sump pumps, piping, and tanks up to and including collector tanks). The program shall include the following:~~

~~a. Preventive maintenance and periodic visual inspection requirements; and~~

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

~~The provisions of SR 3.0.2 are applicable.~~

5.5.3 ~~[~~Deleted~~]~~

(continued)

5.5 Programs and Manuals (continued)

5.5.4 Radioactive Effluent Controls Program

This program, conforming to 10 CFR 50.36a, provides 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 ODAM, shall be implemented by procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

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

b. Limitations on the concentrations of radioactive material released in liquid effluents from the site to unrestricted areas, conforming to ten times (10x) the concentrations listed in Appendix B, Table 2, Column 2 to 10 CFR 20.1001 – 20.2402;

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

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

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

f. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems which were used to establish compliance with the design objectives in 10 CFR 50, Appendix I, Section II be used when specified to provide reasonable assurance that releases of radioactive material in liquid and gaseous effluents be kept as low as reasonably achievable;

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

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

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

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

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

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

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

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

~~5.5.5~~ ~~Component Cyclic or Transient Limit~~

Deleted

~~This program provides controls to track the UFSAR Section 5.3.3, cyclic and transient occurrences to ensure that components are maintained within the design limits.~~

(continued)

5.5 Programs and Manuals (continued)

5.5.6 DELETED

(continued)

5.5 Programs and Manuals (continued)

5.5.7 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of ~~Engineered Safety Feature (ESF)~~ filter ventilation system~~s~~.

Standby Filter Unit (SFU)

The tests described in Specifications 5.5.7.a and 5.5.7.b shall be performed once per 12 months for standby service, after 720 hours of system operation, following significant painting, fire or chemical release in any ventilation zone communicating with the system, after any structural maintenance on the system housing, and after each partial or complete replacement of the HEPA filter train or charcoal adsorber, respectively.

The test described in Specification 5.5.7.c shall be performed once per 12 months for standby service, after 720 hours of system operation and following significant painting, fire or chemical release in any ventilation zone communicating with the system.

The test described in Specification 5.5.7.d shall be performed annually.

~~For the SBGT System only, the test described in Specification 5.5.7.e shall be performed after each complete or partial replacement of the HEPA filter bank and after any structural maintenance on the system housing.~~

~~For the SBGT System only, the test described in Specification 5.5.7.f shall be performed in conjunction with the tests described in Specification 5.5.7.c.~~

a. Demonstrate ~~for each of the ESF systems~~ that an inplace test of the HEPA filters shows a penetration and system bypass at the value specified and at the system flowrate specified below:

~~ESF Ventilation System~~	Penetration and System Bypass (%)	Flowrate (cfm)
~~SBGT System~~	~~< 0.1~~	~~3600 - 4400~~
SFU System	< 1.0	900 - 1100

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

b. Demonstrate ~~for each of the ESF systems~~ that an inplace test of the charcoal adsorber shows a penetration and system bypass at the value specified and at the system flowrate specified below:

~~ESF Ventilation System~~	Penetration and System Bypass (%)	Flowrate (cfm)
~~SBGT System~~	~~< 0.1~~	~~3600 - 4400~~
SFU System	< 1.0	900 - 1100

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

~~ESF Ventilation System~~	Penetration	Relative Humidity
~~SBGT System~~	~~< 0.5%~~	~~≥ 95%~~
SFU System	< 5.0%	≥ 95%

d. Demonstrate ~~for each of the ESF systems~~ that the pressure drop across the combined HEPA filters~~, the prefilters (SBGT System only),~~ and the charcoal adsorbers is less than the value specified below and at the system flowrate specified as follows:

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

~~ESF Ventilation System~~	Delta P (inches wg)	Flowrate (cfm)
~~SBGT System~~	~~< 11~~	~~3600 – 4400~~
SFU System	< 6	900 – 1100

~~e.~~ ~~Demonstrate that air distribution is uniform within 20% of averaged flow per unit across SBGT System HEPA filters.~~

~~f.~~ ~~Visually inspect the SBGT System charcoal adsorber to ensure no flow blockage has occurred.~~

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

5.5.8 ~~Explosive Gas and~~ Storage Tank Radioactivity Monitoring Program

This program provides controls for ~~potentially explosive gas mixtures contained in the Offgas System downstream of the recombiners and~~ the quantity of radioactivity contained in unprotected outdoor liquid storage tanks. The liquid radwaste quantities shall be determined in accordance with Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures".

The program shall include~~:~~

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

(continued)

5.5.8 ~~Explosive Gas and~~ Storage Tank Radioactivity Monitoring Program (continued)

a

~~b.~~ ~~A~~ surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is ≤ 50 curies, excluding tritium and dissolved or entrained noble gases. The liquid radwaste storage tanks in the Low-Level Radwaste Processing and Storage Facility are considered unprotected outdoor tanks.

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

5.5.9 Diesel Fuel Oil Testing Program

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

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

   1. An API gravity within limits,

   2. A viscosity within limits for ASTM 2-D fuel oil, and

   3. Water and sediment within limits;

b. Viscosity, water and sediment for stored ASTM 2-D fuel oil are within limits every 31 days; and

c. Total particulate concentration of the stored fuel oil is ≤ 10 mg/l when tested every 92 days.

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

(continued)

5.5 Programs and Manuals (continued)

5.5.10 Technical Specifications (TS) Bases Control Program

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

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

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

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

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

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

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

5.5.11 Safety Function Determination Program (SFDP)

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

a. The SFDP shall contain the following:

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

(continued)

5.5 Programs and Manuals

5.5.11 Safety Function Determination Program (SFDP) (continued)

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

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

4. Other appropriate limitations and remedial or compensatory actions.

b. A loss of safety function exists when, assuming no concurrent single failure, no concurrent loss of offsite power or no concurrent loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

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

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

3. A required system redundant to support system(s) for the supported systems (1) and (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.

Deleted

5.5.12 ~~Primary Containment Leakage Rate Testing Program~~

~~a. A program shall be established to implement the leakage rate testing of the primary containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions.~~

~~b. This program shall be in accordance with the guidelines contained in NEI 94-01, Revision 3-A, "Industry Guideline for Implementing Performance Based Option of 10 CFR 50, Appendix J," and conditions and limitations specified in NEI 94-01, Revision 2-A, as modified by the following exceptions:~~

~~1. DELETED~~

(continued)

5.5 Programs and Manuals

~~5.5.12~~ ~~Primary Containment Leakage Rate Testing Program (continued)~~

~~2.~~ ~~Exemption from Section III.A of 10 CFR Part 50, Appendix J, Option B, to allow the contribution from Main Steam pathway leakage to be excluded from the overall integrated leakage rate from Type A tests.~~

~~3.~~ ~~Exemption from Section II.B of 10 CFR Part 50, Appendix J, Option B, to allow the contribution from Main Stream pathway leakage to be excluded from the sum of the leakage rates from Type B and Type C tests.~~

~~c.~~ ~~The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 45.7 psig.~~

~~d.~~ ~~The maximum allowable primary containment leakage rate, L_a, at P_a, shall be 2.0% of primary containment air weight per day.~~

~~e.~~ ~~Leakage Rate acceptance criteria are:~~

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

~~2.~~ ~~The air lock testing acceptance criterion is overall air lock leakage rate $\leq$ 0.05 L_a when tested at $\geq$ P_a.~~

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

5.5.13 Control Building Envelope Habitability Program

A Control Building Envelope (CBE) Habitability Program shall be established and implemented to ensure that CBE habitability is maintained such that, with an OPERABLE Standby Filter Unit System, CBE 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 CBE 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 CBE and the CBE boundary.

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

(continued)

5.5 Programs and Manuals

5.5.13 Control Building Envelope Habitability Program (continued)

c. Requirements for (i) determining the unfiltered air inleakage past the CBE boundary into the CBE 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 CBE 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 CBE pressure relative to all external areas adjacent to the CBE boundary during the pressurization mode of operation by one subsystem of the SFU System, operating at the flow rate required by the VFTP, at a Frequency of 24 months on a Staggered Test Basis*. The results shall be trended and used as part of the 24 month assessment of the CBE boundary.

e. The quantitative limits on unfiltered air inleakage into the CBE. 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 leakage limits for hazardous chemicals must ensure that the exposure of CBE 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 CBE habitability, determining CBE unfiltered inleakage, and measuring CBE pressure and assessing the CBE boundary as required by paragraphs c and d, respectively.

(continued)

* 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.

5.5 Programs and Manuals

5.5.14 Surveillance Frequency Control Program

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

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

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

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

5.5.15 Spent Fuel Pool Neutron Absorber Monitoring Program

This program provides routine monitoring and actions to ensure that the condition of Boral in the spent fuel pool racks is appropriately monitored to ensure that the Boral neutron attenuation capability described in the criticality safety analysis of UFSAR Section 9.1 is maintained. The program shall include the following:

a. Neutron attenuation in situ testing for the PaR racks shall be performed at a frequency of not more than 10 years, or more frequently based on observed trends or calculated projections of Boral degradation. The acceptance criterion for minimum Boral areal density will be that value assumed in the criticality safety analysis.

b. Neutron attenuation testing of a representative Boral coupon for the Holtec racks shall be performed at a frequency of not more than 6 years, or more frequently based on observed trends or calculated projections of Boral degradation. The acceptance criterion for minimum Boral density will be that value assumed in the criticality safety analysis.

c. Description of appropriate corrective actions for discovery on nonconforming Boral.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

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

5.6.1 DELETED

5.6.2 Annual Radiological Environmental Operating Report

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 Assessment Manual (ODAM), 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 ODAM, as well as summarized and tabulated results of these analyses and measurements in the format of the table in Regulatory Guide 4.8. 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.

(continued)

5.6 Reporting Requirements (continued)

5.6.3 Radioactive Material Release Report

The Radioactive Material Release Report covering the operation of the unit during the previous calendar 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 ODAM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.

5.6.4 DELETED

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

   1. The Average Planar Linear Heat Generation Rate (APLHGR) for Specification 3.2.1;

   2. The Minimum Critical Power Ratio (MCPR) for Specification 3.2.2;

   3. Exclusion Region in the Power/Flow Map for Specification 3.4.1; and

   4. The Minimum Critical Power Ratios (MCPR) in Table 3.3.2.1-1 for Specification 3.3.2.1.

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in General Electric Standard Application for Reactor Fuel, NEDE-24011-P-A, (GESTAR II). The revision number is the one approved at the time the reload fuel analyses are performed.

(continued)

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

DELETED

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 ~~PAM Report~~

~~When a report is required by Condition B or F of LCO 3.3.3.1, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method(s) of monitoring, describe the degree to which the alternate method(s) are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.~~

5.6.7 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:

i) Limiting Conditions for Operation Section 3.4.9, "RCS Pressure and Temperature (P/T) Limits"

ii) Surveillance Requirements Section 3.4.9, "RCS Pressure and Temperature (P/T) Limits"

b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in the following document:

5.6 Reporting Requirements

5.6.7 <u>Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR) (continued)</u>

i) SIR-05-044-A, "Pressure-Temperature Limits Report Methodology for Boiling Water Reactors," Revision 1, dated June 2013.

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

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation

a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.

b. Access to, and activities in, each such area shall be controlled by means of Radiation Work Permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

c. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

d. Each individual 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 transmits 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,

(continued)

5.7 High Radiation Area (continued)

(i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or

(ii) Be under the surveillance as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.

e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation

a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door 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 designee.

2. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.

(continued)

5.7 High Radiation Area (continued)

b. Access to, and activities in, each 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.

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 or 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 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, 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.

(continued)

5.7 High Radiation Area (continued)

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.

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 light shall be activated at the area as a warning device.

ATTACHMENT 2

REVISED TECHNICAL SPECIFICATION PAGES

(CLEAN, WITH PROPOSED CHANGES)

NEXTERA ENERGY DUANE ARNOLD, LLC
CENTRAL IOWA POWER COOPERATIVE
CORN BELT POWER COOPERATIVE
DOCKET 50-331
DUANE ARNOLD ENERGY CENTER
RENEWED FACILITY LICENSE

Renewed License No. DPR-49

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

   A. The application for license filed by FPL Energy Duane Arnold, LLC,* Central Iowa Power Cooperative and Corn Belt Power Cooperative (the licensees) complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I and all required notifications to other agencies or bodies have been duly made;

   B. Deleted;

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

   D. There is reasonable assurance: (i) that the activities authorized by this renewed license can be conducted without endangering the health and safety of the public; and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;

   E. NextEra Energy Duane Arnold, LLC is technically qualified and NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative and Corn Belt Power Cooperative are financially qualified to engage in the activities authorized by this renewed license in accordance with the rules and regulations of the Commission;

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

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

   H. After weighing the environmental, economic, technical, and other benefits of the facility against environmental costs and considering available alternatives, the issuance of renewed Facility License No. DPR-49 is in accordance with 10 CFR Part 50, Appendix D, of the Commission's regulations and all applicable requirements of said Appendix D have been satisfied;

*On April 16, 2009, the name "FPL Energy Duane Arnold, LLC" was changed to "NextEra Energy Duane Arnold, LLC."

I. Deleted.

2. Renewed Facility License No. DPR-49 is hereby issued to NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative (CIPCO) and Corn Belt Power Cooperative (Corn Belt) to read as follows:

   A. This renewed license applies to the Duane Arnold Energy Center, a permanently defueled boiling water reactor and associated equipment (the facility), owned by NextEra Energy Duane Arnold, LLC, Central Iowa Power Cooperative and Corn Belt Power Cooperative and operated by NextEra Energy Duane Arnold, LLC. The facility is located on NextEra Energy Duane Arnold, LLC's, Central Iowa Power Cooperative's and Corn Belt Power Cooperative's site near Palo in Linn County, Iowa. This site consists of approximately 500 acres adjacent to the Cedar River and is described in the "Final Safety Analysis Report" as supplemented and amended (Amendments 1 through 14) and the Environmental Report as supplemented and amended (Supplements 1 through 5).

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

      (1) NextEra Energy Duane Arnold, LLC, pursuant to Section104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess and use the facility as required for nuclear fuel storage; and CIPCO and Corn Belt to possess the facility at the designated location in Linn County, Iowa, in accordance with the procedures and limitations set forth in this license;

      (2) NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Part 70, to possess at any time special nuclear material that was used as reactor fuel, in accordance with the limitations for storage, as described in the Updated Final Safety Analysis Report, as supplemented and amended as of June 1992 and as supplemented by letters dated March 26, 1993, and November 17, 2000.

      (3) NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use at any time any byproduct, source or sealed sources for radiation monitoring equipment calibration, and to possess any byproduct, source and special nuclear material as sealed neutron sources previously used for reactor startup or reactor instrumentation; and fission detectors;

      (4) NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated radioactive apparatus components;

      (5) NextEra Energy Duane Arnold, LLC, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear materials that were produced by the operation of the facility.

C. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I; Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Deleted

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

The Technical Specifications contained in Appendix A, as revised through Amendment No. , are hereby incorporated in the license. NextEra Energy Duane Arnold, LLC shall maintain the facility in accordance with the Permanently Defueled Technical Specifications.

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

NextEra Energy Duane Arnold, LLC shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated August 5, 2011 (and supplements dated October 14, 2011, April 23, 2012, May 23, 2012, July 9, 2012, October 15, 2012, January 11, 2013, February 12, 2013, March 6, 2013, May 1, 2013, May 29, 2013, two supplements dated July 2, 2013, and supplements dated August 5, 2013 and August 28, 2013) and as approved in the safety evaluation report dated September 10, 2013. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

Risk-Informed Changes that May Be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

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

(b) Prior NRC review and approval is not required for individual changes that result in a risk increase less than 1×10^{-7}/year (yr) for CDF and less than 1×10^{-8}/yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

Other Changes that May Be Made Without Prior NRC Approval

1. Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program. Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to NFPA 805, Chapter 3 element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

   The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3 elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

- Fire Alarm and Detection Systems (Section 3.8);
- Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
- Gaseous Fire Suppression Systems (Section 3.10); and,
- Passive Fire Protection Features (Section 3.11).

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

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

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC safety evaluation report dated September 10, 2013 to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

<u>Transition License Conditions</u>

(1) Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) and (3) below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.

(2) The licensee shall implement the modifications to its facility, as described in Enclosure 2, Attachment S, Table S-1, "Plant modifications Committed," of DAEC letter NG-13-0287, dated July 2, 2013, to complete the transition to full compliance with 10 CFR 50.48(c) by December 31, 2014. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

(3) The licensee shall implement the items listed in Enclosure 2, Attachment S, Table S-2, "Implementation Items," of DAEC letter NG-13-0287, dated July 2, 2013, by March 9, 2014.

(4) Deleted.

(5) <u>Physical Protection</u>

NextEra Energy Duane Arnold, LLC shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Duane Arnold Energy Center Physical Security Plan," submitted by letter dated May 16, 2006.

NextEra Energy Duane Arnold, LLC shall fully implement and maintain in effect all provisions of the Commission-approved Duane Arnold Energy Center/NextEra Energy Duane Arnold, LLC Cyber Security Plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Duane Arnold Energy Center/NextEra Energy Duane Arnold, LLC CSP was approved by License Amendment No. 278, as supplemented by changes approved by license Amendment No. 284 and Amendment 291.

(6) Deleted

(7) Additional Conditions

The Additional Conditions contained in Appendix B, as revised through Amendment No. 279, are hereby incorporated into this license. NextEra Energy Duane Arnold, LLC shall operate the facility in accordance with the Additional Conditions.

(8) The licensee is authorized to revise the Updated Final Safety Analysis Report by deleting the footnote for Section 9.1.4.4.5 which states: "*The NRC has not endorsed the reactor building crane as single-failure proof (Reference 9)," and by deleting Reference 9 of the references for Section 9.1.

(9) Mitigation Strategy License Condition

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

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

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

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

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

(11) Deleted.

(12) Deleted.

(13) Deleted.

D. This license is effective as of the date of issuance and is effective until the Commission notifies the licensee in writing that the license is terminated.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by Eric J. Leeds

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Enclosures:

1. Appendix A Technical Specifications
2. Appendix B Additional Conditions

Date of Issuance: December 16, 2010

APPENDIX B

ADDITIONAL CONDITIONS

LICENSE NO. DPR-49

NextEra Energy Duane Arnold, LLC (the term licensee in Appendix B refers to NextEra Energy Duane Arnold, LLC or prior license holders) shall comply with the following conditions on the schedule noted below:

Amendment Number	Additional Conditions	Implementation Date
223 275	NextEra Energy Duane Arnold, LLC is authorized to relocate certain requirements included in Appendix A to licensee-controlled documents. Implementation of this amendment shall include the relocation of these requirements to the appropriate documents, as described in the licensee's application dated October 30, 1996, as supplemented and consolidated in its March 31, 1998, submittal. These relocations were evaluated in the NRC staff's Safety Evaluation enclosed with this amendment.	This amendment is effective immediately and shall be implemented within 180 days of the date of this amendment.
260 (1) 275	NextEra Energy Duane Arnold shall take all necessary steps to ensure that the external trust fund is established at the time of the closing of the transfer of the license from Interstate Power (IPL) to FPLE Duane Arnold is maintained in accordance with the requirements of the December 23, 2005 order approving the license transfer, NRC regulations, and consistent with the safety evaluation supporting the order. The trust agreement shall be in a form acceptable to the NRC.	This amendment is effective immediately and shall be implemented within 30 days of the date of this amendment.
260 (2) 279	DELETED	
260 (3)	DELETED	

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.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with Resistance Temperature Detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

(continued)

1.1 Definitions (continued)

CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/ml), that alone would produce the same dose as the quantity and isotopic mixture of 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 Federal Guidance Report (FGR) 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1989 and FGR 12, "External Exposure to Radionuclides in Air, Water, and Soil," 1993.
LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for OPERABILITY of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.

(continued)

1.1 Definitions (continued)

OPERABLE — OPERABILITY	A system, subsystem, division, 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, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE	The purpose of this section is to explain the meaning of logical connectors. Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are <u>AND</u> and <u>OR</u>. The physical arrangement of these connectors constitutes logical conventions with specific meanings.
BACKGROUND	Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentions of the logical connectors. When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.
EXAMPLES	The following examples illustrate the use of logical connectors.

(continued)

1.2 Logical Connectors

EXAMPLES (continued)

Example 1.2-1

ACTIONS

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

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

(continued)

1.2 Logical Connectors

EXAMPLES (continued)

Example 1.2-2

ACTIONS

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

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

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE

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

The following discussion and examples contain references to reactor thermal power and reactor MODES. Specifically, Required Actions of several examples direct a change in reactor thermal power or entry into various reactor MODES. Although these Required Actions do not apply to a permanently shut down and defueled facility, the discussion and examples are retained because they continue to have illustrative value. For purposes of these examples, reactor MODES are defined below.

MODE 1 – Power Operation
MODE 2 – Startup
MODE 3 – Hot Shutdown, reactor coolant > 212°F
MODE 4 – Cold Shutdown, reactor coolant ≤ 212°F
MODE 5 – Refueling

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 Times(s).

DESCRIPTION

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of 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. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.

If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the

(continued)

1.3 Completion Times (continued)

associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition.

Once a Condition has been entered, subsequent divisions, 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.

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

a. Must exist concurrent with the first inoperability;
   and

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

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

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

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

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

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time

(continued)

1.3 Completion Times (continued)

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

EXAMPLES

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

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

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

The Required Actions of Condition B are to be in MODE 3 within 12 hours AND in MODE 4 within 36 hours. A total of 12 hours is allowed for reaching MODE 3 and a total of 36 hours (not 48 hours) is allowed for reaching MODE 4 from the time that Condition B was entered. If MODE 3 is reached within 6 hours, the time allowed for reaching MODE 4 is the next 30 hours because the total time allowed for reaching MODE 4 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 4 is the next 36 hours.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable.	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

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

When a second pump is declared inoperable while the first pump is still inoperable, Condition A is not re-entered for the second pump.

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

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

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

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-3 (continued)

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

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

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

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 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 (plus the extension) expires while one or more valves are still inoperable, Condition B is entered.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

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

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

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-5 (continued)

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

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

EXAMPLE 1.3-6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x. OR A.2 Reduce THERMAL POWER to ≤ 50% RTP.	Once per 8 hours 8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-6 (continued)

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

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

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated.	1 hour AND Once per 8 hours thereafter
	AND	
	A.2 Restore subsystem to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	AND	
	B.2 Be in MODE 4.	36 hours

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

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1

(continued)

1.3 Completion Times

EXAMPLES	EXAMPLE 1.3-7 (continued) is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.
IMMEDIATE COMPLETION TIME	When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE

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

The following discussion and examples contain references to reactor thermal power and reactor MODES. Specifically, Required Actions of several examples direct a change in reactor thermal power or entry into various reactor MODES. Although these Required Actions do not apply to a permanently shut down and defueled facility, the discussion and examples are retained because they continue to have illustrative value. For purposes of these examples, reactor MODES are defined below.

MODE 1 – Power Operation
MODE 2 – Startup
MODE 3 – Hot Shutdown, reactor coolant > 212°F
MODE 4 – Cold Shutdown, reactor coolant ≤ 212°F
MODE 5 – Refueling

DESCRIPTION

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

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

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

Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance

(continued)

1.4 Frequency

DESCRIPTION (continued)

or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

The use of "met" or "performed" in these instances conveys specific meanings. A Surveillance is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance, even without a Surveillance specifically being "performed," constitutes a Surveillance not "met." "Performance" refers only to the requirement to specifically determine the ability to meet the acceptance criteria. Some Surveillances contain notes that modify the Frequency of performance or the conditions during which the acceptance criteria must be satisfied. For these Surveillances, the MODE-entry restrictions of SR 3.0.4 may not apply. Such a Surveillance is not required to be performed prior to entering a MODE or other specified condition in the Applicability of the associated LCO if any of the following three conditions are satisfied:

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 discusses these special situations.

(continued)

1.4 Frequency (continued)

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.

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the interval specified in the Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Examples 1.4-3 and 1.4-4), then SR 3.0.3 becomes applicable.

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

(continued)

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

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

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

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the extension allowed by SR 3.0.2.

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

(continued)

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

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

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

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches ≥ 25% RTP to perform the Surveillance. The Surveillance is still considered to be within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day interval (plus the extension allowed by SR 3.0.2), 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.

(continued)

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.

(continued)

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.

(continued)

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 DELETED

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1 LCOs shall be met during the specified conditions in the Applicability, except as provided in LCO 3.0.2.

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 3.0.6.

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 Deleted.

LCO 3.0.4 When an LCO is not met, entry into a specified condition in the Applicability shall only be made:

a. When the associated ACTIONS to be entered permit continued operation in the specified condition in the Applicability for an unlimited period of time;

b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or

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

LCO 3.0.5 Deleted.

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

3.0 LCO APPLICABILITY

LCO 3.0.6 (continued)	Specification 5.5.11, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.
LCO 3.0.7	Deleted.
LCO 3.0.8	Deleted.
LCO 3.0.9	When one or more required barriers are unable to perform their related support function(s), any supported system LCO(s) are not required to be declared not met solely for this reason for up to 30 days provided that at least one train or subsystem of the supported system is OPERABLE and supported by barriers capable of providing their related support function(s), and risk is assessed and managed. This specification may be concurrently applied to more than one train or subsystem of a multiple train or subsystem supported system provided at least one train or subsystem of the supported system is OPERABLE and the barriers supporting each of these trains or subsystems provide their related support function(s) for different categories of initiating events. If the required OPERABLE train or subsystem becomes inoperable while this specification is in use, it must be restored to OPERABLE status within 24 hours or the provisions of this specification cannot be applied to the trains or subsystems supported by the barriers that cannot perform their related support function(s). At the end of the specified period, the required barriers must be able to perform their related support function(s) or the supported system LCO (s) shall be declared not met.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1	SRs shall be met during the specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO. 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. 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.

(continued)

3.0 SR APPLICABILITY (continued)

SR 3.0.4

Entry into a specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a specified condition in the Applicability shall only be made in accordance with LCO 3.0.4.

This provision shall not prevent entry into specified conditions in the Applicability that are required to comply with ACTIONS.

3.1 DELETED

3.2 DELETED

3.3 INSTRUMENTATION

3.3.1.1 DELETED
3.3.1.2 DELETED
3.3.2.1 DELETED
3.3.3.1 DELETED
3.3.3.2 DELETED
3.3.4.1 DELETED
3.3.4.2 DELETED
3.3.5.1 DELETED
3.3.5.2 DELETED
3.3.5.3 DELETED
3.3.6.1 DELETED
3.3.6.2 DELETED
3.3.6.3 DELETED

3.3 INSTRUMENTATION

3.3.7.1 Standby Filter Unit (SFU) System Instrumentation

LCO 3.3.7.1 Two channels of the Control Building Intake Area Radiation – High Function shall be OPERABLE.

APPLICABILITY: During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both channels inoperable.	A.1 Declare associated SFU subsystem(s) inoperable.	1 hour
	<u>OR</u>	
	A.2 Place associated SFU subsystem(s) in the isolation mode.	1 hour

SURVEILLANCE REQUIREMENTS

---NOTE---
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other channel is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be $\leq$ 5 mR/hr.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: When the associated Diesel Generator is required to be OPERABLE by LCO 3.8.2, "AC Sources."

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Function 1 or 3 channels inoperable.	A.1 Place channel in trip.	1 hour
B. One or more Function 2 channels inoperable.	B.1 Declare associated Diesel Generator (DG) inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in one or both divisions
	<u>AND</u>	
	B.2 Place channel in trip.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.8.1-1 to determine which SRs apply for each LOP Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 2 hours provided the associated Function maintains DG initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.8.1-1 (page 1 of 1)
Loss of Power Instrumentation

FUNCTION	REQUIRED CHANNELS PER BUS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)			
a. Bus Undervoltage	1	SR 3.3.8.1.2 SR 3.3.8.1.4 SR 3.3.8.1.5	≥ 595 V and ≤ 2275 V
2. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)			
a. Bus Undervoltage	4	SR 3.3.8.1.1 SR 3.3.8.1.3 SR 3.3.8.1.5	≥ 3780 V and ≤3822 V
b. Time Delay	4	SR 3.3.8.1.1 SR 3.3.8.1.3 SR 3.3.8.1.5	≥ 7.92 seconds and ≤ 8.5 seconds
3. 4.16 kV Emergency Transformer Supply Undervoltage	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.5	≥ 2450 V

3.3.8.2 DELETED

3.4 DELETED

3.5 DELETED

3.6 DELETED

3.7 PLANT SYSTEMS

3.7.1 Deleted

3.7 PLANT SYSTEMS

3.7.2 Deleted

3.7 PLANT SYSTEMS

3.7.3 Deleted

3.7 PLANT SYSTEMS

3.7.4 Standby Filter Unit (SFU) System

LCO 3.7.4 Two SFU subsystems shall be OPERABLE.

-----NOTE-----
The control building envelope (CBE) boundary may be opened intermittently under administrative control.

APPLICABILITY: During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SFU subsystem inoperable for reasons other than an inoperable CBE boundary.	A.1 Restore SFU subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment.	B.1 Place OPERABLE SFU subsystem in the isolation mode.	Immediately
	<u>OR</u>	
	B.2 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately

(continued)

ACTIONS (continued)

CONDITION		REQUIRED ACTION		COMPLETION TIME
C.	Both SFU subsystems inoperable during movement of irradiated fuel assembles in the secondary containment. <u>OR</u> One or more SFU subsystems inoperable due to an inoperable CBE boundary during movement of irradiated fuel assemblies in the secondary containment.	C.1	Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.4.1	Operate each SFU subsystem for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.4.2	Perform required SFU filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify each SFU subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.4.4	Perform required CBE unfiltered air inleakage testing in accordance with the Control Building Envelope Habitability Program.	In accordance with the Control Building Envelope Habitability Program

3.7 PLANT SYSTEMS

3.7.5 Control Building Chiller (CBC) System

LCO 3.7.5 Two CBC subsystems shall be OPERABLE.

APPLICABILITY: During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CBC subsystem inoperable.	A.1 Restore CBC subsystem to OPERABLE status.	30 days
B. Two CBC subsystems inoperable.	B.1 Verify control building area temperatures < 90°F.	Once per 4 hours
	<u>AND</u>	
	B.1 Restore one CBC subsystem to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment.	C.1 Place OPERABLE CBC subsystem in operation. <u>OR</u> C.2 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately Immediately
D. Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies in the secondary containment.	D.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each CBC subsystem has the capability to remove the available heat load.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.6 Deleted

3.7 PLANT SYSTEMS

3.7.7 Deleted

3.7 PLANT SYSTEMS

3.7.8 Spent Fuel Storage Pool Water Level

LCO 3.7.8 The spent fuel storage pool water level shall be ≥ 36 ft.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent fuel storage pool water level not within limit.	A.1 Suspend movement of irradiated fuel assemblies in the spent fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	Verify the spent fuel storage pool water level is ≥ 36 ft.	In accordance with the Surveillance Frequency Control Program

3.7.9 Deleted

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 Deleted

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources

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

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems"; and

b. One Diesel Generators (DG) capable of supplying one division of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8.

APPLICABILITY: During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	-----NOTE----- Enter applicable Condition and Required Actions of LCO 3.8.8, with one required division de-energized as a result of Condition A. --------------------	
	A.1 Declare affected required feature(s), with no offsite power available inoperable.	Immediately
	OR	
	A.2 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
B. One required DG inoperable.	B.1 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.2.1	Verify correct breaker alignment and indicated power availability for the required offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.2.2	-----------------------NOTES--------------------------- 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.2.7 must be met. --- Verify the required DG starts from standby conditions and achieves steady state voltage $\geq$ 3744V and $\leq$ 4576V and frequency $\geq$ 59.5Hz and $\leq$ 60.5Hz.	 In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.2.3	-------------------------NOTES------------------------- 1. This Surveillance need not be performed. 2. DG loadings may include gradual loading as recommended by the manufacturer. 3. Momentary transients outside the load range do not invalidate this test. 4. This Surveillance shall be conducted on only one DG at a time. 5. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.2.2 or SR 3.8.2.7. --- Verify the required DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 2750kw and ≤ 2950kw.	In accordance with the Surveillance Frequency Control Program
SR 3.8.2.4	Verify that the required fuel oil day tank contains ≥ 220 gal of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.2.5	Check for the presence of water in the fuel oil in the required day tank and remove water as necessary.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.2.6	Verify the fuel oil transfer system operates to transfer fuel oil from storage tank to the day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.2.7	-------------------------NOTE------------------------- All DG starts may be preceded by an engine prelube period. --- Verify the required DG starts from standby condition and achieves: a. in ≤ 10 seconds, voltage ≥ 3744V and frequency ≥ 59.5Hz; and b. steady state, voltage ≥ 3744V and ≤ 4576V and frequency ≥ 59.5Hz and ≤ 60.5Hz.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.2.8	------------------------NOTE------------------------ This Surveillance need not be performed. --- Verify the required DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is $\leq$ 64.5Hz. b. Within 1.3 seconds following load rejection, the voltage is $\geq$ 3744V and $\leq$ 4576V. c. Within 3.9 seconds following load rejection, the frequency is $\geq$ 59.5Hz and $\leq$ 60.5Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.2.9	------------------------NOTE------------------------ This Surveillance need not be performed. --- Verify the required DG's automatic trips are bypassed on an actual or simulated Loss of Offsite Power (LOOP) signal except: a. Engine overspeed; and b. Generator lockout.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.2.10	-------------------------NOTE----------------------------- This Surveillance does not need to be performed. -- Verify under manual control the required DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

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

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

--NOTE--
For Conditions B, E, and F, separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel oil level less than a 7 day supply and greater than a 6 day supply.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory less than a 7 day supply and greater than a 6 day supply.	B.1 Restore lube oil inventory to within limits.	48 hours
C. Stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates to within limits.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. New fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with required starting air receiver pressures < 150 psig and ≥ 75 psig.	E.1 Restore required starting air receiver pressure to within limits.	48 hours
F. Required Action and associated Completion Time not met. <u>OR</u> One or more DGs with diesel fuel oil, lube oil, or starting air subsystems not within limits for reasons other than Condition A, B, C, D, or E.	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.3.1	Verify fuel oil storage tank contains a ≥ 7 day supply of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify lube oil inventory is a ≥ 7 day supply for each DG.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify required air start receiver pressure is ≥ 150 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Check for the presence of water in the fuel oil in the fuel oil storage tank and remove water as necessary.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 Deleted

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources

LCO 3.8.5 DC electrical power subsystems shall be OPERABLE to support the DC electrical power distribution subsystems(s) required by LCO 3.8.8, "Distribution Systems."

APPLICABILITY: During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1 Declare affected required features(s) inoperable.	Immediately
	<u>OR</u>	
	A.2 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	Verify battery terminal voltage is ≥ 130.5 V on float charge for the 125 VDC battery.	In accordance with the Surveillance Frequency Control Program
SR 3.8.5.2	Verify no visible corrosion at battery terminals and connectors. <u>OR</u> Verify battery connection resistance within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.5.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	In accordance with the Surveillance Frequency Control Program
SR 3.8.5.4	Remove visible corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	In accordance with the Surveillance Frequency Control Program
SR 3.8.5.5	Verify battery connection resistance within limits.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.5.6	Verify each required battery charger supplies $\geq$ 293 amps at $\geq$ 132.5 V for the 125 VDC subsystem.	In accordance with the Surveillance Frequency Control Program
SR 3.8.5.7	-------------------------NOTES------------------------------ 1. The modified performance discharge test in SR 3.8.5.8 may be performed in lieu of the service test in SR 3.8.5.7. 2. This Surveillance need not be performed. -- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.5.8	---------------------------NOTE--------------------------- This Surveillance need not be performed. -- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program <u>AND</u> 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating <u>AND</u> 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for the Division I and Division II 125 VDC batteries shall be within limits.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Table 3.8.6-1 Category A or B limits.	A.1 Verify pilot cell electrolyte level and float voltage meet Table 3.8.6-1 Category C limits.	1 hour
	<u>AND</u>	
	A.2 Verify parameters for required battery cells meet Table 3.8.6-1 Category C limits.	24 hours <u>AND</u> Once per 7 days thereafter
	<u>AND</u>	
	A.3 Restore parameters for required battery cells to Table 3.8.6-1 Category A and B limits.	31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells not within limits. OR One or more batteries with one or more battery cell parameters for required battery cells not within Table 3.8.6-1 Category C limits.	B.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Once within 24 hours after battery discharge < 110 V for 125 V <u>AND</u> Once within 24 hours after battery overcharge > 150 V for 125 V
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is $\geq$ 65°F for each battery.	In accordance with the Surveillance Frequency Control Program

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameter Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[(a)]	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[(a)]	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity[(b)(c)]	≥ 1.195	≥ 1.190 <u>AND</u> Average of all connected cells > 1.200	Not more than 0.020 below average of all connected cells <u>AND</u> Average of all connected cells ≥ 1.190

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum level during equalizing charges provided it is not overflowing.

(b) Corrected for electrolyte temperature and level. Level correction is not required, however, when on float charge and battery charging current is < 2 amps.

(c) A battery charging current of < 2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Deleted

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Distribution Systems

LCO 3.8.8 The necessary portions of the AC and DC electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC or DC electrical power distribution subsytems inoperable.	A.1 Declare associated supported required feature(s) inoperable. OR A.2 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct breaker alignments and indicated power availability to required AC and DC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

3.9 DELETED

3.10 DELETED

4.0 DESIGN FEATURES

4.1 Site Location

The plant site, which consists of approximately 500 acres, is adjacent to the Cedar River approximately 2.5 miles northeast of the Village of Palo, Iowa. The boundary of the exclusion area defined in 10 CFR 100 is delineated by the property lines. The distance to the outer boundary of the low population zone is 6 miles. The plan of the site is shown on UFSAR Figures 1.2-1 and 1.2-2.

4.2 Deleted

4.3 Fuel Storage

4.3.1 Criticality

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

a. Fuel assemblies having the following limits for maximum k-infinity in the normal reactor core configuration at cold conditions and maximum lattice-average U-235 enrichment weight percent:

	k-∞	wt %
i) 7x7 and 8x8 pin arrays (Legacy Fuel Assemblies only; Holtec and PaR racks)	≤ 1.29	≤ 4.6
ii) 10x10 pin arrays (Holtec and PaR racks)	≤ 1.29	≤ 4.95

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

c. A nominal 6.060 inches for HOLTEC designed and 6.625 inches for PaR designed center to center distance between fuel assemblies placed in the storage racks.

d. The Boral neutron absorber shall have a ^{10}B areal density greater than or equal to 0.0162 grams $^{10}B/cm^2$ with an uncertainty of 0.0012 grams $^{10}B/cm^2$.

(continued)

4.0 DESIGN FEATURES (continued)

4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 831 ft. – 2 3/4 in.

4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 2563 fuel assemblies in a vertical orientation, including no more than 152 fuel assemblies stored in the cask pit in accordance with UFSAR Section 9.1.

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

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

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

5.1.2 The Operations Shift Manager shall be responsible for the control room command function. During any absence of the Operations Shift Manager from the control room while the unit is in MODE 1, 2, or 3, 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 Operations Shift Manager from the control room while the unit is in MODE 4 or 5, an individual with an active SRO license or Reactor Operator license shall be designed 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 the Technical Specifications shall be documented in the UFSAR or QA Program Description;

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

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

(continued)

5.2 Organization (continued)

5.2.2 Unit Staff

The unit staff organization shall also include the following:

a. A non-licensed operator shall be assigned to the reactor when containing fuel and an additional non-licensed operator shall be assigned to the reactor when operating in MODES 1, 2, or 3.

b. Shift crew composition shall meet the requirements stipulated herein and in 10 CFR 50.54(m).

c. 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.g 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.

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

e. Not used.

f. The Operations Manager or Operations Supervisors shall hold an SRO license.

(continued)

5.2 Organization

5.2.2 Unit Staff (continued)

g. 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. This function is not required in MODES 4 and 5.

5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

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

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

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

c. Quality assurance for effluent and environmental monitoring;

d. [Deleted]; and

e. All programs specified in Specifications 5.5.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

The following programs shall be established, implemented and maintained.

5.5.1 <u>Offsite Dose Assessment Manual (ODAM)</u>

a. The ODAM 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 ODAM 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 Report and Radioactive Material Release Report required by Specification 5.6.2 and Specification 5.6.3.

c. Licensee initiated changes to the ODAM:

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

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

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

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

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

(continued)

5.5 Programs and Manuals

5.5.1 Offsite Dose Assessment Manual (ODAM) (continued)

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.

5.5.2 Deleted

5.5.3 Deleted

5.5.4 Radioactive Effluent Controls Program

This program, conforming to 10 CFR 50.36a, provides 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 ODAM, shall be implemented by procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

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

b. Limitations on the concentrations of radioactive material released in liquid effluents from the site to unrestricted areas, conforming to ten times (10x) the concentrations listed in Appendix B, Table 2, Column 2 to 10 CFR 20.1001 – 20.2402;

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

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

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

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

f. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems which were used to establish compliance with the design objectives in 10 CFR 50, Appendix I, Section II be used when specified to provide reasonable assurance that releases of radioactive material in liquid and gaseous effluents be kept as low as reasonably achievable;

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

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

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

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

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

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

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

(continued)

5.5 Programs and Manuals (continued)

5.5.5 Deleted

5.5.6 Deleted

5.5.7 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Standby Filter Unit (SFU) filter ventilation systems.

The tests described in Specifications 5.5.7.a and 5.5.7.b shall be performed once per 12 months for standby service, after 720 hours of system operation, following significant painting, fire or chemical release in any ventilation zone communicating with the system, after any structural maintenance on the system housing, and after each partial or complete replacement of the HEPA filter train or charcoal adsorber, respectively.

The test described in Specification 5.5.7.c shall be performed once per 12 months for standby service, after 720 hours of system operation and following significant painting, fire or chemical release in any ventilation zone communicating with the system.

The test described in Specification 5.5.7.d shall be performed annually.

a. Demonstrate that an inplace test of the HEPA filters shows a penetration and system bypass at the value specified and at the system flowrate specified below:

	Penetration and System Bypass (%)	Flowrate (cfm)
SFU System	< 1.0	900 – 1100

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

b. Demonstrate that an inplace test of the charcoal adsorber shows a penetration and system bypass at the value specified and at the system flowrate specified below:

	Penetration and System Bypass (%)	Flowrate (cfm)
SFU System	< 1.0	900 - 1100

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

	Penetration	Relative Humidity
SFU System	< 5.0%	≥ 95%

d. Demonstrate that the pressure drop across the combined HEPA filters and the charcoal adsorbers is less than the value specified below and at the system flowrate specified as follows:

	Delta P (inches wg)	Flowrate (cfm)
SFU System	< 6	900 – 1100

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

(continued)

5.5 Programs and Manuals (continued)

5.5.8 Storage Tank Radioactivity Monitoring Program

This program provides controls for the quantity of radioactivity contained in unprotected outdoor liquid storage tanks. The liquid radwaste quantities shall be determined in accordance with Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures".

The program shall include a surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is ≤ 50 curies, excluding tritium and dissolved or entrained noble gases. The liquid radwaste storage tanks in the Low-Level Radwaste Processing and Storage Facility are considered unprotected outdoor tanks.

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

(continued)

5.5 Programs and Manuals (continued)

5.5.9 Diesel Fuel Oil Testing Program

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

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

   1. An API gravity within limits,

   2. A viscosity within limits for ASTM 2-D fuel oil, and

   3. Water and sediment within limits;

b. Viscosity, water and sediment for stored ASTM 2-D fuel oil are within limits every 31 days; and

c. Total particulate concentration of the stored fuel oil is $\leq$ 10 mg/l when tested every 92 days.

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

5.5.10 Technical Specifications (TS) Bases Control Program

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

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

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

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

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

(continued)

5.5 Programs and Manuals

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

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

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

5.5.11 Safety Function Determination Program (SFDP)

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

a. The SFDP shall contain the following:

1. Provisions for cross division 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.

(continued)

5.5 Programs and Manuals

5.5.11 Safety Function Determination Program (SFDP) (continued)

b. A loss of safety function exists when, assuming no concurrent single failure, no concurrent loss of offsite power or no concurrent loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

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

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

   3. A required system redundant to support system(s) for the supported systems (1) and (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.

5.5.12 Deleted

5.5.13 Control Building Envelope Habitability Program

A Control Building Envelope (CBE) Habitability Program shall be established and implemented to ensure that CBE habitability is maintained such that, with an OPERABLE Standby Filter Unit System, CBE 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 CBE 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:

(continued)

5.5 Programs and Manuals

5.5.13 Control Building Envelope Habitability Program (continued)

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

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

c. Requirements for (i) determining the unfiltered air inleakage past the CBE boundary into the CBE 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 CBE 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 CBE pressure relative to all external areas adjacent to the CBE boundary during the pressurization mode of operation by one subsystem of the SFU System, operating at the flow rate required by the VFTP, at a Frequency of 24 months on a Staggered Test Basis*. The results shall be trended and used as part of the 24 month assessment of the CBE boundary.

e. The quantitative limits on unfiltered air inleakage into the CBE. 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 leakage limits for hazardous chemicals must ensure that the exposure of CBE 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 CBE habitability, determining CBE unfiltered inleakage, and measuring CBE pressure and assessing the CBE boundary as required by paragraphs c and d, respectively.

(continued)

* 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.

5.5 Programs and Manuals (continued)

5.5.14 Surveillance Frequency Control Program

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

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

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

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

5.5.15 Spent Fuel Pool Neutron Absorber Monitoring Program

This program provides routine monitoring and actions to ensure that the condition of Boral in the spent fuel pool racks is appropriately monitored to ensure that the Boral neutron attenuation capability described in the criticality safety analysis of UFSAR Section 9.1 is maintained. The program shall include the following:

a. Neutron attenuation in situ testing for the PaR racks shall be performed at a frequency of not more than 10 years, or more frequently based on observed trends or calculated projections of Boral degradation. The acceptance criterion for minimum Boral areal density will be that value assumed in the criticality safety analysis.

b. Neutron attenuation testing of a representative Boral coupon for the Holtec racks shall be performed at a frequency of not more than 6 years, or more frequently based on observed trends or calculated projections of Boral degradation. The acceptance criterion for minimum Boral density will be that value assumed in the criticality safety analysis.

c. Description of appropriate corrective actions for discovery on nonconforming Boral.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

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

5.6.1 DELETED

5.6.2 Annual Radiological Environmental Operating Report

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 Assessment Manual (ODAM), 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 ODAM, as well as summarized and tabulated results of these analyses and measurements in the format of the table in Regulatory Guide 4.8. 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.

(continued)

5.6 Reporting Requirements (continued)

5.6.3 Radioactive Material Release Report

The Radioactive Material Release Report covering the operation of the unit during the previous calendar 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 ODAM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.

5.6.4 DELETED

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

   1. The Average Planar Linear Heat Generation Rate (APLHGR) for Specification 3.2.1;

   2. The Minimum Critical Power Ratio (MCPR) for Specification 3.2.2;

   3. Exclusion Region in the Power/Flow Map for Specification 3.4.1; and

   4. The Minimum Critical Power Ratios (MCPR) in Table 3.3.2.1-1 for Specification 3.3.2.1.

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in General Electric Standard Application for Reactor Fuel, NEDE-24011-P-A, (GESTAR II). The revision number is the one approved at the time the reload fuel analyses are performed.

(continued)

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 DELETED

5.6.7 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:

i) Limiting Conditions for Operation Section 3.4.9, "RCS Pressure and Temperature (P/T) Limits"

ii) Surveillance Requirements Section 3.4.9, "RCS Pressure and Temperature (P/T) Limits"

b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in the following document:

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

i) SIR-05-044-A, "Pressure-Temperature Limits Report Methodology for Boiling Water Reactors," Revision 1, dated June 2013.

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

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation

a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.

b. Access to, and activities in, each such area shall be controlled by means of Radiation Work Permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

c. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

d. Each individual 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 transmits 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,

(continued)

5.7 High Radiation Area (continued)

(i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or

(ii) Be under the surveillance as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.

e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation

a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door 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 designee.

2. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.

(continued)

5.7 High Radiation Area (continued)

b. Access to, and activities in, each 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.

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 or 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 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, 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.

(continued)

5.7 High Radiation Area (continued)

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.

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 light shall be activated at the area as a warning device.

ATTACHMENT 3

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES (MARK-UP)

B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

BASES

LCOs

LCO 3.0.1 through LCO 3.0.9 establish the general requirements applicable to all Specifications in Sections 3.1 through 3.10 and apply at all times, unless otherwise stated.

LCO 3.0.1

LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirement for when the LCO is required to be met (i.e., when the ~~unit~~ facility is in the ~~MODES or other~~ specified conditions of the Applicability statement of each Specification).

LCO 3.0.2

LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that:

a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification; and

b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.

There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, the facility may need to be placed ~~a shutdown may be required to place the unit~~ in a ~~MODE or~~ condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action

(continued)

BASES

LCO 3.0.2 (continued)

specifies ~~the~~ remedial measures ~~that permit continued operation of the unit that is not further restricted by the Completion Time~~. In this case, compliance with the Required Actions provides an acceptable level of safety ~~for continued operation~~.

the facility

Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.

The nature of some Required Actions of some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Condition no longer exists. The individual LCO's ACTIONS specify the Required Actions where this is the case. ~~An example of this is in LCO 3.4.9, "RCS Pressure and Temperature (P/T) Limits."~~

equipment

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of Surveillances, preventive maintenance, corrective maintenance, or investigation of ~~operational~~ problems. Entering ACTIONS for these reasons must be done in a manner that does not compromise safety. Intentional entry into ACTIONS should not be made for operational convenience. Additionally, if intentional entry into ACTIONS would result in redundant equipment being inoperable, alternatives should be used instead. Doing so limits the time both subsystems/divisions of a safety function are inoperable ~~and limits the time conditions exist which may result in LCO 3.0.3 being entered~~. Individual Specifications may specify a time limit for performing an SR when equipment is removed from service or bypassed for testing. In this case, the Completion Times of the Required Actions are applicable when this time limit expires, if the equipment remains removed from service or bypassed.

When a change in ~~MODE or other~~ specified condition is required to comply with Required Actions, the ~~unit~~ may enter a ~~MODE or other~~ specified condition in which another Specification becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new Specification becomes applicable and the ACTIONS Condition(s) are entered.

facility

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(continued)

Deleted.

BASES (continued)

LCO 3.0.3

~~LCO 3.0.3 establishes the actions that must be implemented when an LCO is not met and:~~

~~a. An associated Required Action and Completion Time is not met and no other Condition applies; or~~

~~b. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit. Sometimes, possible combinations of Conditions are such that entering LCO 3.0.3 is warranted; in such cases, the ACTIONS specifically state a Condition corresponding to such combinations and also that LCO 3.0.3 be entered immediately.~~

~~This Specification delineates the time limits for placing the unit in a safe MODE or other specified condition when operation cannot be maintained within the limits for safe operation as defined by the LCO and its ACTIONS. It is not intended to be used as an operational convenience that permits routine voluntary removal of redundant systems or components from service in lieu of other alternatives that would not result in redundant systems or components being inoperable.~~

~~Upon entering LCO 3.0.3, 1 hour is allowed to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid. The time limits specified to reach lower MODES of operation permit the shutdown to proceed in a controlled and orderly manner that is well within the specified maximum cooldown rate and within the capabilities of the unit, assuming that only the minimum required equipment is OPERABLE. This reduces thermal stresses on components of the Reactor Coolant System and the potential for a plant upset that could challenge safety systems under conditions to which this Specification applies. The use and interpretation of specified times to complete the actions of LCO 3.0.3 are consistent with the discussion of Section 1.3, Completion Times.~~

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(continued)

BASES

~~LCO 3.0.3 (continued)~~

~~A unit shutdown required in accordance with LCO 3.0.3 may be terminated and LCO 3.0.3 exited if any of the following occurs:~~

~~a.~~ ~~The LCO is now met.~~

~~b.~~ ~~A Condition exists for which the Required Actions have now been performed.~~

~~c.~~ ~~ACTIONS exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the Condition is initially entered and not from the time LCO 3.0.3 is exited.~~

~~The time limits of Specification 3.0.3 allow 37 hours for the unit to be in MODE 4 when a shutdown is required during MODE 1 operation. If the unit is in a lower MODE of operation when a shutdown is required, the time limit for reaching the next lower MODE applies. If a lower MODE is reached in less time than allowed, however, the total allowable time to reach MODE 4, or other applicable MODE, is not reduced. For example, if MODE 2 is reached in 2 hours, then the time allowed for reaching MODE 3 is the next 11 hours, because the total time for reaching MODE 3 is not reduced from the allowable limit of 13 hours. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to reach a lower MODE of operation in less than the total time allowed.~~

~~In MODES 1, 2, and 3, LCO 3.0.3 provides actions for Conditions not covered in other Specifications. The requirements of LCO 3.0.3 do not apply in MODES 4 and 5 because the unit is already in the most restrictive Condition required by LCO 3.0.3. The requirements of LCO 3.0.3 do not apply in other specified conditions of the Applicability (unless in MODE 1, 2, or 3) because the ACTIONS of individual Specifications sufficiently define the remedial measures to be taken.~~

~~Exceptions to LCO 3.0.3 are provided in instances where requiring a unit shutdown, in accordance with LCO 3.0.3, would not provide appropriate remedial measures for the associated condition of the unit. An example of this is in LCO 3.7.8, "Spent Fuel Storage Pool Water Level." LCO 3.7.8 has an Applicability of "During movement of irradiated fuel assemblies in the spent fuel~~

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(continued)

BASES

~~LCO 3.0.3 (continued)~~

~~storage pool." Therefore, this LCO can be applicable in any or all MODES. If the LCO and the Required Actions of LCO 3.7.8 are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of LCO 3.7.8 of "Suspend movement of irradiated fuel assemblies in the spent fuel storage pool" is the appropriate Required Action to complete in lieu of the actions of LCO 3.0.3. These exceptions are addressed in the individual Specifications.~~

LCO 3.0.4

LCO 3.0.4 establishes limitations on changes in ~~MODES or other~~ specified conditions in the Applicability when an LCO is not met. It allows placing the facility ~~unit~~ in a ~~MODE or other~~ specified condition stated in that Applicability (e.g., the Applicability desired to be entered) when facility ~~unit~~ conditions are such that the requirements of the LCO would not be met, in accordance with LCO 3.0.4.a, LCO 3.0.4.b, or LCO 3.0.4.c.

LCO 3.0.4.a allows entry into a ~~MODE or other~~ specified condition in the Applicability with the LCO not met when the associated ACTIONS to be entered permit the facility to be ~~continued operation~~ in the ~~MODE or other~~ specified condition in the Applicability for an unlimited period of time. Compliance with such Required Actions ~~that permit continued operation of the unit for an unlimited period of time in a MODE or other specified condition~~ provides an acceptable level of safety ~~for continued operation~~. This is without regard to the status of the facility ~~unit~~ before or after the ~~MODE~~ specified condition change. Therefore, in such cases, entry into a ~~MODE or other~~ specified condition in the Applicability may be made in accordance with the provisions of the Required Actions.

LCO 3.0.4.b allows entry into a ~~MODE or other~~ specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the ~~MODE or other~~ specified condition in the Applicability, and establishment of risk management actions, if appropriate.

The risk assessment may use quantitative, qualitative, or blended approaches, and the risk assessment will be conducted using the plant program, procedures, and criteria in place to implement

(continued)

BASES

LCO 3.0.4 (continued)

10 CFR 50.65(a)(4), which requires that risk impacts of maintenance activities be assessed and managed. The risk assessment, for the purposes of LCO 3.0.4.b, must take into account all inoperable Technical Specification equipment regardless of whether the equipment is included in the normal 10 CFR 50.65(a)(4) risk assessment scope. The risk assessments will be conducted using the procedures and guidance endorsed by Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Regulatory Guide 1.160 endorses Revision 4A of NUMARC 93-01 dated April 2011, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." These documents address general guidance for conduct of the risk assessment, quantitative and qualitative guidelines for establishing risk management actions, and example risk management actions. These include actions to plan and conduct other activities in a manner that controls overall risk, increased risk awareness by shift and management personnel, actions to reduce the duration of the condition, actions to minimize the magnitude of risk increases (establishment of backup success paths or compensatory measures), and determination that the proposed specified condition ~~MODE~~ change is acceptable. Consideration should also be given to the probability of completing restoration such that the requirements of the LCO would be met prior to the expiration of ACTIONS Completion Times that would require exiting the Applicability.

LCO 3.0.4.b may be used with single, or multiple systems and components unavailable. NUMARC 93-01 provides guidance relative to consideration of simultaneous unavailability of multiple systems and components.

The results of the risk assessment shall be considered in determining the acceptability of entering the ~~MODE or other~~ specified condition in the Applicability, and any corresponding risk management actions. The LCO 3.0.4.b risk assessments do not have to be documented.

~~The Technical Specifications allow continued operation with equipment unavailable in MODE 1 for the duration of the Completion Time. Since this is allowable, and since in general the risk impact in that particular MODE bounds the risk of transitioning into the through the applicable MODES or other specified conditions in the Applicability of the LCO, the use of the LCO 3.0.4.b allowance should be generally acceptable, as long as the~~

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BASES

LCO 3.0.4 (continued)

~~risk is assessed and managed as stated above. However, there is a small subset of systems and components that have been determined to be more important to risk and use of the LCO 3.0.4.b allowance is prohibited. The LCOs governing these systems and components contain Notes prohibiting the use of LCO 3.0.4.b by stating that LCO 3.0.4.b is not applicable.~~

LCO 3.0.4.c allows entry into a ~~MODE or other~~ specified condition in the Applicability with the LCO not met based on a Note in the Specification which states LCO 3.0.4.c is applicable. These specific allowances permit entry into ~~MODES or other~~ specified conditions in the Applicability when the associated ACTIONS to be entered do not provide for ~~continued operation~~ the facility remaining in the condition for an unlimited period of time and a risk assessment has not been performed. This allowance may apply to all the ACTIONS or to a specific Required Action of a Specification. The risk assessments performed to justify the use of LCO 3.0.4.b usually only consider systems and components. For this reason, LCO 3.0.4.c is typically applied to Specifications which describe values and parameters ~~(e.g., Reactor Coolant System Specific Activity)~~, and may be applied to other Specifications based on NRC plant-specific approval.

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated ~~MODE or other~~ specified condition in the Applicability.

The provisions of LCO 3.0.4 shall not prevent changes in ~~MODES or other~~ specified conditions in the Applicability that are required to comply with ACTIONS. ~~In addition, the provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown. In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2 or MODE 3, MODE 2 to MODE 3, and MODE 3 to MODE 4.~~

Upon entry into a ~~MODE or other~~ specified condition in the Applicability with the LCO not met, LCO 3.0.1 and LCO 3.0.2 require entry into the applicable Conditions and Required Actions until the Condition is resolved, until the LCO is met, or until the ~~unit~~ facility is not within the Applicability of the Technical Specification.

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BASES

LCO 3.0.4 (continued)

Surveillances do not have to be performed on the associated inoperable equipment (or on variables outside the specified limits), as permitted by SR 3.0.1. Therefore, utilizing LCO 3.0.4 is not a violation of SR 3.0.1 or SR 3.0.4 for any Surveillances that have not been performed on inoperable equipment. However, SRs must be met to ensure OPERABILITY prior to declaring the associated equipment OPERABLE (or variable within limits) and restoring compliance with the affected LCO.

LCO 3.0.5

Deleted.

~~LCO 3.0.5 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable to comply with ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of required testing to demonstrate:~~

~~a. The OPERABILITY of the equipment being returned to service; or~~

~~b. The OPERABILITY of other equipment.~~

~~The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the required testing to demonstrate OPERABILITY. This Specification does not provide time to perform any other preventive or corrective maintenance.~~

~~An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions and must be reopened to perform the required testing.~~

~~An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of required testing on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of required testing on another channel in the same trip system.~~

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(continued)

BASES

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This facility exception is justified because the actions that are required to ensure ~~the plant~~ is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

When a support system is inoperable and there is an LCO specified for it in the TS, the supported system(s) are required to be declared inoperable if determined to be inoperable as a result of the support system inoperability.

However, it is not necessary to enter into the supported systems' Conditions and Required Actions unless directed to do so by the support system's Required Actions. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCOs' Conditions and Required Actions are eliminated by providing all the actions that are necessary to ensure the ~~plant is~~ maintained in a safe condition in the support system's Required Actions. facility

However, there are instances where a support system's Required Action may either direct a supported system to be declared inoperable or direct entry into Conditions and Required Actions for the supported system. This may occur immediately or after some specified delay to perform some other Required Action. Regardless of whether it is immediate or after some delay, 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.

Specification 5.5.11, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or

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(continued)

BASES

LCO 3.0.6 (continued)

compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

Cross division checks to identify a loss of safety function for those support systems that support safety systems are required. The cross division check verifies that the supported systems of the redundant OPERABLE support system are OPERABLE, thereby ensuring safety function is retained.

A loss of safety function may exist when a support system is inoperable, and:

A. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or (EXAMPLE B3.0.6-1)

B. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or (EXAMPLE B3.0.6-2)

C. A required system redundant to support system(s) for the supported systems (a) and (b) above is also inoperable. (EXAMPLE B3.0.6-3)

<u>EXAMPLE B3.0.6-1</u>
If System 2 of Train A is inoperable, and System 5 of Train B is operable, a loss of safety function exists in supported System 5.

<u>EXAMPLE B3.0.6-2</u>
If System 2 of Train A is inoperable, and System 11 of Train B is inoperable, a loss of safety function exists in System 11 which is in turn supported by System 5.

<u>EXAMPLE B3.0.6-3</u>
If System 2 of Train A is inoperable, and System 1 of Train B is inoperable, a loss of safety function exists in Systems 2, 4, 5, 8, 9, 10, and 11.

If this evaluation determines that a loss of safety function exists, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

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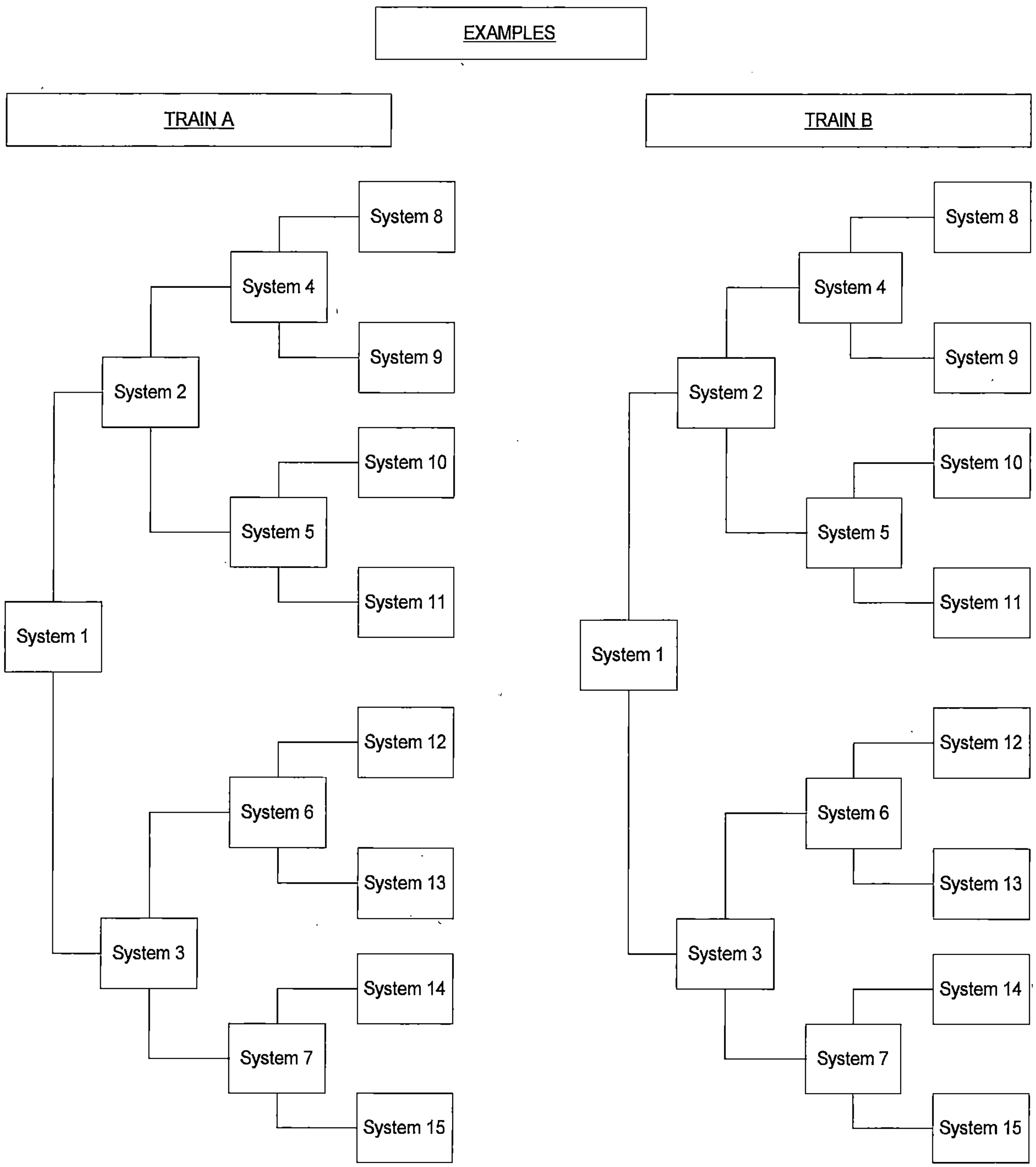
(continued)

BASES

LCO 3.0.6
(continued)



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BASES

LCO 3.0.6 (continued)

This loss of safety function does not require the assumption of additional single failures or loss of offsite power. Since operation is being restricted in accordance with the ACTIONS of the support system, any resulting temporary loss of redundancy or single failure protection is taken into account. Similarly, the ACTIONS for inoperable offsite circuit(s) and inoperable diesel generator(s) provide the necessary restriction for cross train inoperabilities. This explicit cross train verification for inoperable AC electrical power sources also acknowledges that supported system(s) are not declared inoperable solely as a result of inoperability of a normal or emergency electrical power source (refer to the definition of OPERABILITY).

When a loss of safety function is determined to exist, and the SFDP requires entry into the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists, consideration must be given to the specific type of function affected. Where a loss of function is solely due to a single Technical Specification support system (e.g., loss of automatic start due to inoperable instrumentation, or loss of pump suction source due to low tank level) the appropriate LCO is the LCO for the support system. The ACTIONS for a support system LCO adequately addresses the inoperabilities of that system without reliance on entering its supported system LCO. When the loss of function is the result of multiple support systems, the appropriate LCO is the LCO for the supported system.

LCO 3.0.7

Deleted.

~~There are certain special tests and operations required to be performed at various times over the life of the unit. These special tests and operations are necessary to demonstrate select unit performance characteristics, to perform special maintenance activities, and to perform special evolutions. Special Operations LCOs in Section 3.10 allow specified TS requirements to be changed to permit performances of these special tests and operations, which otherwise could not be performed if required to comply with the requirements of these TS. Unless otherwise specified, all the other TS requirements remain unchanged. This will ensure all appropriate requirements of the MODE or other specified condition not directly associated with or required to perform the special test or operation will remain in effect.~~

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(continued)

BASES

~~LCO 3.0.7 (continued)~~

~~The Applicability of a Special Operations LCO represents a condition not necessarily in compliance with the normal requirements of the TS. Compliance with Special Operations LCOs is optional. A special operation may be performed either under the provisions of the appropriate Special Operations LCO or under the other applicable TS requirements. If it is desired to perform the special operation under the provisions of the Special Operations LCO, the requirements of the Special Operations LCO shall be followed. When a Special Operations LCO requires another LCO to be met, only the requirements of the LCO statement are required to be met regardless of that LCO's Applicability (i.e., should the requirements of this other LCO not be met, the ACTIONS of the Special Operations LCO apply, not the ACTIONS of the other LCO). However, there are instances where the Special Operations LCO's ACTIONS may direct the other LCO's ACTIONS be met. The Surveillances of the other LCO are not required to be met, unless specified in the Special Operations LCO. If conditions exist such that the Applicability of any other LCO is met, all the other LCO's requirements (ACTIONS and SRs) are required to be met concurrent with the requirements of the Special Operations LCO.~~

LCO 3.0.8

Deleted.

~~LCO 3.0.8 establishes conditions under which systems are considered to remain capable of performing their intended safety function when associated snubbers are not capable of providing their associated support function(s). This LCO states that the supported system is not considered to be inoperable solely due to one or more snubbers not capable of performing their associated support function(s). This is appropriate because a limited length of time is allowed for maintenance, testing, or repair of one or more snubbers not capable of performing their associated support function(s) and appropriate compensatory measures are specified in the snubber requirements, which are located outside of the Technical Specifications (TS) under licensee control. The snubber requirements do not meet the criteria in 10 CFR 50.36(c)(2)(ii), and, as such, are appropriate for control by the licensee.~~

~~If the allowed time expires and the snubber(s) are unable to perform their associated support function(s), the affected supported system's LCO(s) must be declared not met and the Conditions and Required Actions entered in accordance with LCO 3.0.2.~~

BASES

~~LCO 3.0.8~~

~~LCO 3.0.8.a applies when one or more snubbers are not capable of providing their associated support function(s) to a single train or subsystem of a multiple train or subsystem supported system or to a single train or subsystem supported system. LCO 3.0.8.a allows 72 hours to restore the snubber(s) before declaring the supported system inoperable. The 72 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function and due to the availability of the redundant train of the supported system.~~

~~LCO 3.0.8.b applies when one or more snubbers are not capable of providing their associated support function(s) to more than one train or subsystem of a multiple train or subsystem supported system. LCO 3.0.8.b allows 12 hours to restore the snubber(s) before declaring the supported system inoperable. The 12 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function.~~

~~LCO 3.0.8 requires that risk be assessed and managed. Industry and NRC guidance on the implementation of 10 CFR 50.65(a)(4) (the Maintenance Rule) does not address seismic risk. However, use of LCO 3.0.8 should be considered with respect to other plant maintenance activities, and integrated into the existing Maintenance Rule process to the extent possible so that maintenance on any unaffected train or subsystem is properly controlled, and emergent issues are properly addressed. The risk assessment need not be quantified, but may be a qualitative awareness of the vulnerability of systems and components when one or more snubbers are not able to perform their associated support function.~~

LCO 3.0.9 ~~(continued)~~

LCO 3.0.9 establishes conditions under which systems described in the Technical Specifications are considered to remain OPERABLE when required barriers are not capable of providing their related support function(s).

(continued)

BASES

LCO 3.0.9 (continued)

Barriers are doors, walls, floor plugs, curbs, hatches, installed structures or components, or other devices, not explicitly described in Technical Specifications, that support the performance of the safety function of systems described in the Technical Specifications. This LCO states that the supported system is not considered to be inoperable solely due to required barriers not capable of performing their related support function(s) under the described conditions. LCO 3.0.9 allows 30 days before declaring the supported system(s) inoperable and the LCO(s) associated with the supported system(s) not met. A maximum time is placed on each use of this allowance to ensure that as required barriers are found or are otherwise made unavailable, they are restored. However, the allowable duration may be less than the specified maximum time based on the risk assessment.

If the allowed time expires and the barriers are unable to perform their related support function(s), the supported system's LCO(s) must be declared not met and the Conditions and Required Actions entered in accordance with LCO 3.0.2.

This provision does not apply to barriers which support ventilation systems or to fire barriers. The Technical Specifications for ventilation systems provide specific Conditions for inoperable barriers. Fire barriers are addressed by other regulatory requirements and associated facility ~~plant~~ programs. This provision does not apply to barriers which are not required to support system OPERABILITY (see NRC Regulatory Issue Summary 2001-09, "Control of Hazard Barriers," dated April 2, 2001).

The provisions of LCO 3.0.9 are justified because of the low risk associated with required barriers not being capable of performing their related support function. This provision is based on consideration of the following initiating event categories:

- ~~Loss of coolant accidents;~~
- ~~High energy line breaks;~~
- ~~Feedwater line breaks;~~
- Internal flooding;
- External flooding;
- ~~Turbine missile ejection; and~~
- Tornado or high wind.

(continued)

BASES

LCO 3.0.9 (continued)

The risk impact of the barriers which cannot perform their related support function(s) must be addressed pursuant to the risk assessment and management provision of the Maintenance Rule, 10 CFR 50.65 (a)(4), and the associated implementation guidance, Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Regulatory Guide 1.160 endorses Revision 4A of NUMARC 93-01 dated April 2011, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." This guidance provides for the consideration of dynamic plant configuration issues, emergent conditions, and other aspects pertinent to plant operation with the barriers unable to perform their related support function(s). These considerations may result in risk management and other compensatory actions being required during the period that barriers are unable to perform their related support function(s).

LCO 3.0.9 may be applied to one or more trains or subsystems of a system supported by barriers that cannot provide their related support function(s), provided that risk is assessed and managed ~~(including consideration of the effects on Large Early Release and from external events)~~. If applied concurrently to more than one train or subsystem of a multiple train or subsystem supported system, the barriers supporting each of these trains or subsystems must provide their related support function(s) for different categories of initiating events. For example, LCO 3.0.9 may be applied for up to 30 days for more than one train of a multiple train supported system if the affected barrier for one train protects against internal flooding and the affected barrier for the other train protects against tornado missiles. In this example, the affected barrier may be the same physical barrier but serve different protection functions for each train.

~~The HPCI (High Pressure Coolant Injection) and RCIC (Reactor Core Isolation Cooling) systems are single train systems for injecting makeup water into the reactor during an accident or transient event. The RCIC system is not a safety system, nor required to operate during a transient, therefore, it does not have to meet the single failure criterion. The HPCI system provides backup in case of a RCIC system failure. The ADS (Automatic Depressurization System) and low pressure ECCS coolant injection provide the core cooling function in the event of failure of the HPCI system during an accident. Thus, for the purposes of LCO 3.0.9, the HPCI system, the RCIC system, and the ADS are considered independent subsystems of a single system and LCO 3.0.9 can be used on these single train systems in a manner similar to multiple train or subsystem systems.~~

(continued)

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BASES

LCO 3.0.9 (continued)

If during the time that LCO 3.0.9 is being used, the required OPERABLE train or subsystem becomes inoperable, it must be restored to OPERABLE status within 24 hours. Otherwise, the train(s) or subsystem(s) supported by barriers that cannot perform their related support function(s) must be declared inoperable and the associated LCOs declared not met. ~~This 24 hour period provides time to respond to emergent conditions that would otherwise likely lead to entry into LCO 3.0.3 and a rapid plant shutdown, which is not justified given the low probability of an initiating event which would require the barrier(s) not capable of performing their related support function(s).~~ During this 24 hour period, the plant risk associated with the existing conditions is assessed and managed in accordance with 10 CFR 50.65(a)(4).

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs

SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications in Sections 3.1 through 3.10 and apply at all times, unless otherwise stated.

SR 3.0.1

SR 3.0.1 establishes the requirement that SRs must be met during the ~~MODES or other~~ specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO.

Surveillance may be performed by means of any series of sequential, overlapping, or total steps provided the entire Surveillance is performed within the specified Frequency. Additionally, the definitions related to instrument testing (e.g., CHANNEL CALIBRATION) specify that these tests are performed by means of any series of sequential, overlapping, or total steps.

Systems and components are assumed to be OPERABLE when the associated SRs have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when:

a. The systems or components are known to be inoperable, although still meeting the SRs; or

b. The requirements of the Surveillance(s) are known to be not met between required Surveillance performances.

facility

Surveillances do not have to be performed when the ~~unit~~ is in a ~~MODE or other~~ specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified. ~~The SRs associated with a Special Operations LCO are only applicable when the Special Operations LCO is used as an allowable exception to the requirements of a Specification.~~

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with SR 3.0.2, prior to returning equipment to OPERABLE status.

(continued)

BASES

SR 3.0.1 (continued)

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current ~~MODE or other~~ specified conditions in the Applicability due to the necessary facility ~~unit~~ parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a ~~MODE or other~~ specified condition where other necessary post maintenance tests can be completed.

~~Some examples of this process are:~~

~~a. Control Rod Drive maintenance during refueling that requires scram testing at > 800 psi. However, if other appropriate testing is satisfactorily completed, the control rod can be considered OPERABLE. This allows startup to proceed to reach 800 psi to perform other necessary testing.~~

~~b. High pressure coolant injection (HPCI) maintenance during shutdown that requires system functional tests at a specified pressure. Provided other appropriate testing is satisfactorily completed, startup can proceed with HPCI considered OPERABLE. This allows operation to reach the specified pressure to complete the necessary post maintenance testing.~~

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per..." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers facility ~~plant operating~~ conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

(continued)

BASES

SR 3.0.2 (continued)

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. Therefore, when a test interval is specified in the regulations, the test interval cannot be extended by TS, and the SR includes a Note in the Frequency stating, "SR 3.0.2 is not applicable."

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with SR 3.0.2, and not at the time that the specified Frequency was not met.

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(continued)

BASES

SR 3.0.3 (continued)

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

facility

The basis for this delay period includes consideration of ~~unit~~ conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

~~When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity. SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.~~

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals. While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on ~~plant~~ risk (from delaying the Surveillance as well as any ~~plant~~ configuraton changes required ~~or shutting the plant down~~ to perform the Surveillance) and impact on any analysis assumptions, in addition to ~~unit~~ conditions, planning, availability of

facility

facility

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(continued)

BASES

SR 3.0.3 (continued)

personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed Surveillances for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the Corrective Action Program.

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

SR 3.0.4

SR 3.0.4 establishes the requirement that all applicable SRs must be met before entry into a ~~MODE or other~~ specified condition in the Applicability.

This Specification ensures that system and component OPERABILITY requirements and variable limits are met before entry into ~~MODES or other~~ specified conditions in the Applicability for which these systems and components ensure ~~safe operation~~ maintenance of the ~~unit~~ facility.

(continued)

BASES

SR 3.0.4 (continued)

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated ~~MODE or other~~ specified condition in the Applicability.

A provision is included to allow entry into a ~~MODE or other~~ specified condition in the Applicability when an LCO is not met due to Surveillance not being met in accordance with LCO 3.0.4.

However, in certain circumstances, failing to meet an SR will not result in SR 3.0.4 restricting a ~~MODE change or other~~ specified condition change. When a system, subsystem, division, component, device, or variable is inoperable or outside its specified limits, the associated SR(s) are not required to be performed per SR 3.0.1, which states that Surveillances do not have to be performed on inoperable equipment. When equipment is inoperable, SR 3.0.4 does not apply to the associated SR(s) since the requirement for the SR(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified Frequency does not result in an SR 3.0.4 restriction to changing ~~MODES or other~~ specified conditions of the Applicability. However, since the LCO is not met in this instance, LCO 3.0.4 will govern any restrictions that may (or may not) apply to ~~MODE or other~~ specified condition changes. ~~SR 3.0.4 does not restrict changing MODES or other specified conditions of the Applicability when a Surveillance has not been performed within the specified Frequency, provided the requirement to declare the LCO not met has been delayed in accordance with SR 3.0.3~~

The provisions of SR 3.0.4 shall not prevent changes in ~~MODES or other~~ specified conditions in the Applicability that are required to comply with ACTIONS. ~~In addition, the provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown. In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2 or MODE 3, MODE 2 to MODE 3, and MODE 3 to MODE 4.~~

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BASES

SR 3.0.4 (continued)

The precise requirements for performance of SRs are specified such that exceptions to SR 3.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs are specified in the Frequency, in the Surveillance, or both. This allows performance of Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the ~~MODE or other~~ specified condition in the Applicability of the associated LCO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the LCO's Applicability would have its Frequency specified such that it is not "due" until the specific conditions needed are met. Alternately, the Surveillance may be stated in the form of a Note, as not required (to be met or performed) until a particular event, condition, or time has been reached. Further discussion of the specific formats of SRs' annotation is found in Section 1.4, Frequency.

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B 3.3 INSTRUMENTATION

B 3.3.7.1 Standby Filter Unit (SFU) System Instrumentation

personnel facility

BASES

BACKGROUND

The SFU System is designed to provide a radiologically controlled environment to ensure the habitability of the control room for the safety of control room ~~operators~~ under all ~~plant~~ conditions. Two independent SFU subsystems are each capable of fulfilling the stated safety function. The instrumentation and controls for the SFU System automatically initiate action to pressurize the control building envelope to minimize the consequences of radioactive material in the control building envelope.

In the event of a Control Building Intake Area Radiation - High signal, the SFU System is automatically started. The outside air is then passed through the charcoal filter and mixed with recirculated air to maintain the control building envelope slightly pressurized with respect to the atmosphere.

The SFU System instrumentation has two trip systems, with each trip system dedicated to its corresponding SFU. Each trip system receives input from the Control Building Intake Area Radiation - High Function, and is arranged in a one-out-of-one logic. The channels include electronic equipment (e.g., radiation monitors) that compare measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs a SFU System initiation signal and a Control Building Ventilation System isolation signal to the initiation logic. the Fuel Handling Accident

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The ability of the SFU System to maintain the habitability of the control building envelope is explicitly assumed for ~~certain accidents~~ as discussed in the UFSAR safety analyses (Refs. 1 and 2). SFU System operation ensures that the radiation exposure of control room personnel, through the duration ~~of any one of~~ the postulated accident~~s~~, does not exceed the limits of 10 CFR 50.67.

SFU System instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

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(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The OPERABILITY of the SFU System instrumentation is dependent upon the OPERABILITY of the Control Building Intake Area Radiation - High channel Function. Each SFU must have one OPERABLE channel, with the radiation monitor setpoint within the specified Allowable Value. A channel is inoperable if its actual trip setpoint is not within its required Allowable Value. The actual setpoint is calibrated consistent with applicable setpoint methodology assumptions.

previously applicable

This Allowable Value (AV) is derived from ~~the~~ Analytical Limit (AL) used in the radiological dose analyses of the design basis ~~LOCA~~ (Ref. 1) and ensures that doses to control room personnel remain within the limits of 10 CFR 50.67. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. Trip setpoints are those predetermined values of output at which an action should take place. The setpoints are compared to the actual process parameter (e.g., control building intake area radiation level), and when the measured output value of the process parameter exceeds the setpoint, the associated device (e.g., radiation monitor output) changes state.

Loss of Coolant Accident (LOCA).

Although the LOCA is no longer applicable to the permanently shut down and defueled DAEC, the analysis remains valid and bounding.

The Applicable Safety Analyses, LCO, and Applicability discussion for the Control Building Intake Area Radiation - High Function follows.

Control Building Intake Area Radiation — High

The control building intake area radiation monitors measure radiation levels exterior to the intake ducting of the control ~~Building~~. A high radiation level may pose a threat to control room personnel; thus, this function automatically initiates the SFU System and places the Control Building Ventilation System in the isolation mode.

building

The Control Building Intake Area Radiation — High Function consists of two independent monitors. Two channels of Control Building Intake Area Radiation — High are available and are required to be OPERABLE to ensure that no single instrument failure can preclude SFU System initiation. The Allowable Value was selected to ensure protection of the control room personnel.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

Control Building Intake Area Radiation — High (continued)

The Control Building Intake Area Radiation — High Function is required to be OPERABLE ~~in MODES 1, 2, and 3 and~~ during ~~CORE ALTERATIONS and~~ movement of irradiated fuel assemblies in the secondary containment, to ensure that control room personnel are protected during a ~~LOCA,~~ fuel handling event~~, or vessel draindown event~~. ~~During MODES 4 and 5, when these specified conditions are not in progress (e.g., CORE ALTERATIONS), the probability of a LOCA or fuel damage is low; thus, the Function is not required.~~

ACTIONS

A Note has been provided to modify the ACTIONS related to SFU System instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, 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. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable SFU System instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable SFU System instrumentation channel.

A.1, and A.2

With a Control Building Intake Area Radiation-High Channel inoperable, the initiation capability of the associated SFU subsystem is lost. Therefore, the associated SFU subsystem(s) must be declared inoperable within 1 hour per Required Action A.1, or must be placed in the isolation mode of operation, (i.e., the SFU in operation and the Control Building Ventilation System isolated, within 1 hour per Required Action A.2. Placing the subsystem in the isolation mode ensures that control room personnel will be protected in the event of a ~~Design Basis Accident~~ Fuel Handling Accident (FHA). The method used to place the SFU subsystem(s) in operation must provide for automatically re-initiating the subsystem(s) upon restoration of power following a loss of power to the SFU subsystem(s).

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BASES

ACTIONS

A.1, and A.2 (continued)

The 1 hour Completion Time is intended to allow the operator time to place the SFU subsystem(s) in the isolation mode of operation, and is acceptable because it minimizes risk while allowing time for restoration of channels, or for placing the associated SFU in its safety mode, or for entering the applicable Conditions and Required Actions for the inoperable SFU subsystem(s).

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the other channel is OPERABLE. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Refs. 4 and 5) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the SFU System will initiate when necessary.

SR 3.3.7.1.1

Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.7.1.1 (continued)

Agreement criteria are determined by the plant staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is based upon operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel status during normal ~~operational~~ use of the displays associated with channels required by the LCO.

SR 3.3.7.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests ~~at least once per refueling interval with applicable extensions~~.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is based on the reliability analyses of References 4 and 5.

SR 3.3.7.1.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is based upon the equipment drift in the setpoint analysis.

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(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.7.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.7.4, "Standby Filter Unit (SFU) System," overlaps this Surveillance to provide complete testing of the assumed safety function.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is based on operating experience that has shown these components usually pass the Surveillance when performed at this Frequency.

REFERENCES

1. UFSAR, Section 15.2.
2. UFSAR, Section 6.4.4.
3. [Deleted]
4. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.

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B 3.3 INSTRUMENTATION

B 3.3.8.1 Loss of Power (LOP) Instrumentation

BASES

BACKGROUND

Successful operation of the required safety functions ~~of the Emergency Core Cooling Systems (ECCS)~~ is dependent upon the availability of adequate power sources for energizing the various components such as pump motors, motor operated valves, and the associated control components. The LOP instrumentation monitors the 4.16 kv emergency bus voltages and the Startup and Standby Transformer secondary winding voltages. Offsite power is the preferred source of power for the 4.16 Kv emergency buses. If the monitors determine that insufficient power is available, the buses are disconnected from the offsite power sources and connected to the onsite Diesel Generator (DG) power sources. ~~The monitors also provide start permissive signals for the low pressure ECCS pumps and inputs to various load shedding circuits.~~

Each 4.16 kV emergency bus has its own independent LOP instrumentation and associated trip logic. Each bus is monitored at two different voltage levels, which can be considered as two different undervoltage Functions: 4.16 kV Emergency Bus Loss of Voltage and 4.16 kV Emergency Bus Degraded Voltage. A third LOP Function monitors the voltages of the secondary windings of both the Startup and Standby Transformers (4.16 kV Emergency Transformer Supply Undervoltage). Each of these Functions provide inputs to various required actions such as: bus transfers, load sheds, or DG starts. Each emergency bus is monitored for the Loss of Voltage Function by a single undervoltage relay. Each bus is monitored for the Degraded Voltage Function by four relays whose contacts form a coincidence logic matrix such that either of the A1 or A2 contacts and either of the B1 or B2 contacts must close to initiate the required actions in the associated division (i.e., one-out-of-two taken twice). For the Emergency Transformer Supply Undervoltage Function, the secondary winding of the Standby Transformer is monitored by two channels. One channel provides an input to initiate the required actions in one division, while the other channel provides input to initiate the required actions in the other division. Each channel of the Emergency Transformer Supply Undervoltage Function includes two relays. Both of the secondary windings of the Startup Transformer (i.e., a separate secondary winding is associated with each division) are

(continued)

BASES

BACKGROUND (continued)

monitored by a single relay for this Function; the relay that monitors the winding associated with each division provides an input to initiate the required actions in that division. The initiation logic for each division receives inputs from both the Startup and Standby Transformers secondary windings (i.e., two-out-of two relay logic). The various channels include monitoring equipment (i.e., current transformers or voltage transformers) and relays that compare measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs a LOP signal to its associated trip logic.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The LOP instrumentation is required ~~for Engineered Safety Features (ESF)~~ to function in any accident with a loss of offsite power. The required channels of LOP instrumentation ensure that the ~~ECCS and other~~ assumed systems powered from the DGs, provide plant protection in the event of any of the Reference 1~~, 2, and 3~~ analyzed accident~~s~~ in which a loss of offsite power is assumed. The LOP instrumentation also serves to provide protection ~~for the ESF~~ from damage that could occur due to prolonged degraded voltage conditions on the grid. ~~The initiation of the DGs on a LOP or LOCA signal, and concurrent initiation of the ECCS on a LOCA signal ensure that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46. Disconnecting the emergency buses from the offsite sources and starting the DGs when a prolonged degraded voltage condition exists ensures that the ESF (e.g., large pump motors) are not damaged due to starting with insufficient voltage present.~~

Accident analyses credit the loading of the DG based on the loss of offsite power ~~during a LOCA~~. The diesel starting and loading times have been included in the delay time associated with each safety system component requiring DG supplied power following a loss of offsite power.

The LOP instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

The OPERABILITY of the LOP instrumentation is dependent upon the OPERABILITY of the individual instrumentation channel Functions specified in Table 3.3.8.1-1. Each Function must have a required number of OPERABLE channels per 4.16 kV emergency bus, with their setpoints within the specified Allowable Values. The actual setpoint is calibrated consistent with applicable setpoint methodology assumptions.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The Allowable Values are specified for each Function in the Table. Nominal trip setpoints are specified in the setpoint calculations. The nominal setpoints are selected to ensure that the setpoints do not exceed the Allowable Value between CHANNEL CALIBRATIONS. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within the Allowable Value, is acceptable. A channel is inoperable if its actual trip setpoint is not within its required Allowable Value. Trip setpoints are those predetermined values of output at which an action should take place. The setpoints are compared to the actual process parameter (e.g., degraded voltage), and when the measured output value of the process parameter exceeds the setpoint, the associated device (e.g., relay) changes state. Analytical Limits are the limiting values of the process parameters for use in safety analysis. Margin is provided between the Allowable Value and the Analytical Limits to allow for process, calibration (i.e., M&TE) and some instrument uncertainties. Additional margin is provided between the Allowable Value and the trip setpoint to allow for the remaining instrument uncertainties (e.g., drift). The trip setpoints derived in this manner provide adequate protection because instrumentation uncertainties, process effects, calibration tolerances, instrument drift, and severe environment errors (for channels that must function in harsh environments as defined by 10 CFR 50.49) are accounted for.

The specific Applicable Safety Analyses, LCO, and Applicability discussions are listed below on a Function by Function basis.

1. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)

Loss of voltage on a 4.16 kV emergency bus indicates that offsite power has been completely lost to the respective emergency bus and is unable to supply sufficient power for proper operation of the applicable equipment. Therefore, the power supply to the bus is transferred from offsite power to DG power and the various loads connected to the emergency bus are load shed when the voltage on the bus drops below the Loss of Voltage Function Allowable Values. This ensures that adequate power will be available to the required equipment.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) (continued)

The Bus Undervoltage Allowable Values are low enough to prevent power supply transfer and load shedding unless offsite power has truly been lost, but high enough to ensure that power is available to the required equipment.

One channel of 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) Function per associated emergency bus is only required to be OPERABLE~~ in MODES 1, 2, 3, and~~ when the associated DG is required to be OPERABLE by LCO 3.8.2, to ensure that no single instrument failure can preclude the DG function. (One channel provides input to the initiation logic for its respective division.) Refer to LCO ~~3.8.1, "AC Sources-Operating," and~~ 3.8.2, "AC Sources~~-Shutdown~~," for Applicability Bases for the DGs.

2. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)

A reduced voltage condition on a 4.16 kV emergency bus indicates that, while offsite power may not be completely lost to the respective emergency bus, available power may be insufficient for starting large ~~ECCS~~ motors without risking damage to the motors ~~that could disable the ECCS function~~. Therefore, power supply to the bus is transferred from offsite power to onsite DG power when the voltage on the bus drops below the Degraded Voltage Function Allowable Values (degraded voltage with a time delay). This ensures that adequate power will be available to the required equipment.

The Bus Undervoltage Allowable Values are low enough to prevent inadvertent power supply transfer, but high enough to ensure that sufficient power is available to the required equipment. The Time Delay Allowable Values are long enough to provide time for the offsite power supply to recover to normal voltages, but short enough to ensure that sufficient power is available to the required equipment.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage) (continued)

Four channels of 4.16 kv Emergency Bus Undervoltage (Degraded Voltage) Function per associated bus are only required to be OPERABLE~~ in MODES 1, 2, and 3, and~~ when the associated DG is required to be OPERABLE by LCO 3.8.2, to ensure that no single instrument failure can preclude the DG function. Refer to LCO~~ 3.8.1 and LCO~~ 3.8.2 for Applicability Bases for the DGs.

3. 4.16 kV Emergency Transformer Supply Undervoltage

An undervoltage condition on either the Startup Transformer secondary winding or the Standby Transformer secondary winding indicates that offsite power may be lost and is unable to supply sufficient power for proper operation of the applicable equipment. This Function is similar to Function 1, except whereas Function 1 monitors each emergency bus voltage, Function 3 monitors the voltage of the offsite sources directly via the secondary windings of the two transformers associated with the two offsite sources. Therefore, when an undervoltage condition exists on an individual transformer, the supply breakers from that transformer to the emergency buses are tripped open. If an undervoltage condition exists on both transformers, then the supply breakers from both transformers to the emergency buses are tripped open and a start signal is sent to the associated DG. This ensures that adequate power will be available to the required equipment.

The Emergency Transformer Supply Undervoltage Allowable Values are low enough to prevent inadvertent power supply transfer, but high enough to ensure that power is available to the required equipment.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

3. 4.16 kV Emergency Transformer Supply Undervoltage (continued)

Two channels of 4.16 kv Emergency Transformer Supply Undervoltage Function (one channel from the secondary winding of the Startup Transformer and one channel from the secondary winding of the Standby Transformer) per associated emergency bus are only required to be OPERABLE ~~in MODES 1, 2, and 3, and~~ when the associated DG is required to be OPERABLE by LCO 3.8.2, to ensure that no single failure can preclude the DG function. Refer to ~~LCO 3.8.1 and~~ LCO 3.8.2 for Applicability Bases for the DGs.

ACTIONS

A Note has been provided to modify the ACTIONS related to LOP instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, 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. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable LOP instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable LOP instrumentation channel.

A.1

With one or more channels of Function 1 or 3 inoperable, the Function is not capable of performing the intended function. Therefore, only 1 hour is allowed to restore the inoperable channel to OPERABLE status. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action A.1. Placing the inoperable channel in trip would conservatively compensate for the inoperability~~,~~ and restore capability to accommodate a single failure (within the LOP instrumentation)~~, and allow operation to continue~~. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the channel in trip would result in a DG

(continued)

BASES

ACTIONS

A.1 (continued)

initiation), Condition C must be entered and its Required Action taken. The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

B.1 and B.2

With certain combinations of multiple Function 2 channels inoperable, the ability of the 4.16 kv Emergency Bus Undervoltage (Degraded Voltage) Function to separate the emergency buses from the offsite sources and to start the DG(s) may be lost. Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels of Function 2 result in automatic initiation capability being lost in one or both divisions. If initiation capability is lost, the associated DG(s) must be declared inoperable within 1 hour from discovery of loss of initiation capability for feature(s) in one or both divisions. This requires entry into applicable Conditions and Required Actions of LCO ~~3.8.1 or LCO~~ 3.8.2, which provide appropriate actions for the inoperable DG(s).

With one Function 2 channel inoperable, or with certain combinations of multiple Function 2 channels inoperable, the ability of the 4.16 kv Emergency Bus Undervoltage (Degraded Voltage) Function to initiate the required actions in either or both divisions is maintained by the remaining OPERABLE channels. In this situation, the requirement to place a channel in trip within 1 hour as in Required Action A.1, or to immediately declare the associated DG inoperable, is overly conservative. The 24 hour Completion Time of Required Action B.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The 24 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

(continued)

BASES

ACTIONS (continued)

C.1

If the Required Action and associated Completion Time is not met, the associated Function is not capable of performing the intended function. Therefore, the associated DG(s) is declared inoperable immediately. This requires entry into applicable Conditions and Required Actions of LCO ~~3.8.1 and LCO~~ 3.8.2, which provide appropriate actions for the inoperable DG(s).

SURVEILLANCE REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each LOP instrumentation Function are located in the SRs column of Table 3.3.8.1-1.

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 2 hours provided the associated Function maintains DG initiation capability. Upon completion of the Surveillance, or expiration of the 2 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken.

SR 3.3.8.1.1 and SR 3.3.8.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests ~~at least once per refueling interval with applicable extensions~~.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequencies is based on operating experience with regard to channel OPERABILITY and drift, which demonstrates that failure of more than one channel of a given Function in this interval is a rare event.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.8.1.3 and SR 3.3.8.1.4

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Surveillance ~~Frequency is~~ Frequencies are controlled under the Surveillance Frequency Control Program. The Frequencies ~~is~~ are based upon the magnitude of equipment drift in the setpoint analysis.

SR 3.3.8.1.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel. The system functional testing performed in ~~LCO 3.8.1 and~~ LCO 3.8.2 overlaps this Surveillance to provide complete testing of the assumed safety functions.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. ~~The Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.~~ Operating experience has shown these components usually pass the Surveillance when performed at this Frequency.

REFERENCES

1. ~~UFSAR, Section 6.2.~~

~~2.~~ ~~UFSAR, Section 6.3.~~

~~3.~~ UFSAR, Chapter 15.

B 3.7 PLANT SYSTEMS

B 3.7.4 Standby Filter Unit (SFU) System

BASES

BACKGROUND

The SFU System provides a protected environment from which occupants can control the ~~unit~~ facility following an uncontrolled release of radioactivity, hazardous chemicals or smoke.

The safety related function of the SFU System includes two independent and redundant high efficiency air filtration subsystems for emergency treatment of outside supply air and a Control Building Envelope (CBE) boundary that limits the inleakage of unfiltered air. Each SFU subsystem consists of a demister, an electric heater, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section, a second HEPA filter, a fan, and the associated ductwork, valves or dampers, doors, barriers, and instrumentation. Demisters remove water droplets from the airstream. HEPA filters remove particulate matter, which may be radioactive. The charcoal adsorbers provide a holdup period for gaseous iodine, allowing time for decay.

The CBE is the area within the confines of the CBE boundary that contains the spaces that control building occupants inhabit to control the ~~unit~~ facility during normal and accident conditions. This area encompasses the control building, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CBE is protected during normal operation, natural events, and accident conditions. The CBE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CBE. The OPERABILITY of the CBE boundary must be maintained to ensure that the inleakage of unfiltered air into the CBE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CBE occupants. The CBE and its boundary are defined in the Control Building Envelope Habitability Program.

The SFU System is a standby system, parts of which also operate during normal unit operations to maintain the CBE. Upon receipt of the initiation signal (indicative of conditions that could result in radiation exposure to CBE occupants), the SFU System automatically starts and a system of dampers isolates the CBE to minimize infiltration of contaminated air into the CBE. Outside air is taken in at the normal ventilation intake and is passed through

(continued)

BASES

BACKGROUND (continued)

one of the charcoal adsorber filter subsystems for removal of airborne radioactive particles before being mixed with the recirculated air. The air (outside and/or recirculated) is cooled by Air Conditioning (AC) units supplied by the Control Building Chillers (CBCs). The SFUs and AC units share common ductwork such that either SFU may supply outside air to either AC unit. However, the CBCs and AC units are addressed as part of LCO 3.7.5, "Control Building Chiller System."

The SFU System is designed to maintain a habitable environment in the CBE for a 30 day continuous occupancy after a DBA without exceeding 5 rem total effective dose equivalent (TEDE). A single SFU subsystem operating at a flow rate of 1000 cfm ±10% will pressurize the control room to ≥ 0.1 inches water gauge pressure above atmospheric pressure, under calm wind conditions (i.e. less than 5 mph wind speed) relative to the Reactor Building and outside atmosphere. A single SFU subsystem operating at a flow rate of 1000 cfm ±10% will also pressurize the CBE to a positive pressure above atmospheric pressure, under calm wind conditions (i.e. less than 5 mph wind speed) relative to external areas adjacent to the CBE boundary. This will minimize infiltration of air from all surrounding areas adjacent to the CBE boundary.

Other areas in the CBE that directly communicate with the CBE via HVAC system ductwork or doors are also required to maintain a positive pressure relative to the adjacent areas outside the CBE. This will assure that leakage is from the CBE to the adjacent areas or outdoors. SFU System operation in maintaining a habitable environment in the CBE is discussed in the UFSAR, Sections 6.4 and 9.4.4, (Refs. 1 and 2, respectively).

APPLICABLE SAFETY ANALYSES

The ability of the SFU System to maintain the habitability of the CBE is an explicit assumption for the safety analyses presented in the UFSAR, Sections 6.4 and 15.2 (Refs. 1 and 3, respectively). The SFU System is assumed to operate in the isolation mode following a DBA. The radiological doses to the CBE occupants as a result of the ~~various~~ DBA~~s~~ ~~are~~ is summarized in Reference 3. No single active failure will cause the loss of CBE habitability.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

There are no offsite or onsite hazardous chemicals that would pose a credible threat to CBE habitability (Ref. 7). Consequently, engineered controls for the CBE are not required to ensure habitability against a chemical threat.

The evaluation of a smoke challenge demonstrated that smoke will not result in the inability of the CBE occupants to control the reactor either from the control room or from the remote shutdown system (Ref. 7). The assessment verified that a fire or smoke event anywhere within the plant would not simultaneously render the remote shutdown system and the CBE uninhabitable, nor would it prevent access from the CBE to the remote shutdown system in the event remote shutdown is required. No automatic SFU actuation is required for hazardous chemical releases or smoke and no Surveillance Requirements are required to verify OPERABILITY in cases of hazardous chemicals or smoke.

The SFU System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two redundant subsystems of the SFU System are required to be OPERABLE to ensure that at least one is available, if a single active failure disables the other subsystem. Total SFU System failure, such as from a loss of both ventilation subsystems or from an inoperable CBE boundary, could result in exceeding a dose of 5 rem TEDE to the CBE occupants in the event of a DBA.

Each SFU subsystem is considered OPERABLE when the individual components necessary to limit CBE occupant exposure are OPERABLE. A subsystem is considered OPERABLE when its associated:

a. Fan is OPERABLE;

b. HEPA filter and charcoal adsorbers are not excessively restricting flow and are capable of performing their filtration functions; and

c. Heater, demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

(continued)

BASES

the

LCO (continued)

In addition, the necessary portions of the River Water Supply system and the Ultimate Heat Sink, Emergency Service Water System, and Control Building/Standby Gas Treatment Instrument Air System are also required to provide controlling air to the SFU System.

In order for the SFU subsystems to be considered OPERABLE, the CBE boundary must be maintained such that the CBE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBA~~s~~. ~~In the event of an inoperable CBE boundary in MODES 1, 2, or 3, mitigating actions are required to ensure CBE occupants are protected from hazardous chemicals and smoke.~~

DAEC does not have automatic SFU actuation for hazardous chemicals or smoke. Current practices at DAEC do not utilize chemicals in sufficient quantity to present a chemical hazard to the CBE. Smoke is not considered in the DAEC safety analysis. Therefore, there are no specific limits at DAEC for hazardous chemicals or smoke.

The LCO is modified by a Note allowing the CBE boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CBE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through the doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with the operators in the CBE. This individual will have a method to rapidly close the opening and to restore the CBE boundary to a condition equivalent to the design condition when a need for CBE isolation is indicated.

APPLICABILITY

~~In MODES 1, 2, and 3, the SFU System must be OPERABLE to ensure that the CBE will remain habitable during and following a DBA, since the DBA could lead to a fission product release.~~

The

~~In MODES 4 and 5, the probability and consequences of a DBA are reduced because of the pressure and temperature limitations in these MODES. Therefore, maintaining the~~ SFU System OPERABLE ~~is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:~~

is required to be

during movement of irradiated fuel assemblies in the secondary containment.

(continued)

BASES

~~APPLICABILITY (continued)~~

~~a. During CORE ALTERATIONS; and~~

~~b. During movement of irradiated fuel assemblies in the secondary containment.~~

ACTIONS

A.1

With one SFU subsystem inoperable, for reasons other than an inoperable CBE boundary, the inoperable SFU subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE SFU subsystem is adequate to perform the CBE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE subsystem could result in loss of the SFU System function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

~~B.1, B.2, and B.3~~

~~If the unfiltered inleakage of potentially contaminated air past the CBE boundary and into the CBE can result in CBE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem TEDE), the CBE boundary is inoperable. As discussed in the Applicable Safety Analyses section, the DAEC licensing basis identifies that CBE inleakage limits for hazardous chemicals and smoke are not necessary to protect the CBE occupants. Allowing verification by administrative means for hazardous chemicals and smoke is considered acceptable, since the limit established for radiological events is the limiting value for determining entry into Condition B for an inoperable CBE boundary. These administrative controls consist of the following:~~

- ~~Verification that the periodic check of onsite and offsite hazardous chemical sources has been performed within the last year; and~~
- ~~Verification that the smoke analysis of Reference 7 remains valid and current.~~

(continued)

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BASES

ACTIONS (continued)

~~B.1, B.2, and B.3 (continued)~~

~~A periodic check of onsite and offsite hazardous chemical sources takes place once per year to ensure no onsite or offsite sources of hazardous chemicals exist that could present a chemical hazard to CBE occupants. No onsite or offsite sources of hazardous chemicals currently exist that could present a chemical hazard to CBE occupants.~~

~~Actions must be taken to restore an OPERABLE CBE boundary within 90 days.~~

~~During the period that the CBE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CBE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CBE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CBE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional.~~

~~The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CBE occupants within analyzed limits while limiting the probability that CBE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CBE boundary.~~

~~C.1 and C.2~~

~~In MODE 1, 2, or 3, if the inoperable SFU subsystem or the CBE boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit~~

(continued)

BASES

ACTIONS (continued)

~~C.1 and C.2 (continued)~~

~~conditions from full power conditions in an orderly manner and without challenging unit systems.~~

B ~~D~~.1, ~~D.2.1, and D.2.2~~ B.2

~~LCO 3.0.3 is not applicable in MODE 4 or 5. However, since irradiated fuel assembly movement can occur in MODE 1, 2, or 3, the Required Actions of Condition D are modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.~~

During movement of irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~, if the inoperable SFU subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE SFU subsystem may be placed in the isolation mode (i.e., one SFU subsystem in operation with the control building isolated). This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent automatic actuation will occur, and ~~that~~ any active failure will be readily detected. An alternative to Required Action B ~~D~~.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the CBE. This places the ~~unit~~ facility in a condition that minimizes the accident risk.

If applicable, ~~CORE ALTERATIONS and~~ movement of irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position.

~~E.1~~

~~If both SFU subsystems are inoperable in MODE 1, 2, or 3 for reasons other than an inoperable CBE boundary (i.e., Condition B), the SFU System may not be capable of performing the intended function and the unit is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.~~

(continued)

ACTIONS (continued)

~~F~~C.1 ~~and F.2~~

~~LCO 3.0.3 is not applicable in MODE 4 or 5. However, since irradiated fuel assembly movement can occur in MODE 1, 2, or 3, the Required Actions of Condition F are modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.~~

During movement of irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~, with two SFU subsystems inoperable, or with one or more SFU subsystems inoperable due to an inoperable CBE boundary, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the CBE. This places the ~~unit~~ facility in a condition that minimizes the accident risk.

If applicable, ~~CORE ALTERATIONS and~~ movement of irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. ~~If applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Action must continue until the OPDRVs are suspended.~~

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

Operating each SFU subsystem for ≥ 15 minutes ensures that both subsystems are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage or fan or motor failure, can be detected for corrective action. Since the SFU charcoal is tested at a Relative Humidity ≥ 95%, extended operation of the electric heaters is not required. Thus, each subsystem need only be operated for ≥ 15 minutes to demonstrate the function of each subsystem. The function of the SFU electric heaters is to pre-heat incoming air to above 40°F to ensure adsorption occurs within the temperature range that charcoal testing is performed. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.

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SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.4.2

This SR verifies that the required SFU testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test Frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.4.3

This SR verifies that on an actual or simulated initiation signal, each SFU subsystem starts and operates. This SR also ensures that the control building isolates. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.7.1, "Standby Filter Unit Instrumentation," overlaps this SR to provide complete testing of the safety function. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. ~~While this Surveillance can be performed with the reactor at power, operating~~ Operating experience has shown that these components usually pass the Surveillance when performed at ~~this~~ the current Frequency. Therefore, the Frequency was found to be acceptable ~~from~~ a reliability standpoint.

SR 3.7.4.4

This SR verifies the OPERABILITY of the CBE boundary by testing for unfiltered air inleakage past the CBE boundary and into the CBE. The details of the testing are specified in the Control Building Envelope Habitability Program.

The CBE is considered habitable when the radiological dose to CBE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem TEDE and the CBE occupants are protected from hazardous chemicals and smoke. For DAEC, there is no automatic SFU actuation for hazardous chemical releases or smoke and there are no Surveillance Requirements that verify OPERABILITY in cases of hazardous chemicals or smoke. This SR verifies that the unfiltered air inleakage into the CBE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition ~~B~~ C must be entered. ~~Required Action B.3 allows time to restore the CBE boundary to OPERABLE status provided mitigating actions can ensure that the CBE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.4.4 (continued)

~~Guide 1.196, Section C.2.7.3, (Ref. 4) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 5). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 6).~~ Options for restoring the CBE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CBE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CBE boundary has been restored to OPERABLE status.

REFERENCES

1. UFSAR, Section 6.4.
2. UFSAR, Section 9.4.4.
3. UFSAR, Section 15.2.
4. Regulatory Guide 1.196.
5. NEI 99-03, "Control Room Habitability Assessment," June 2001.
6. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).
7. Letter from Mark A. Peifer (NMC, LLC) to Document Control Desk (USNRC) dated January 28, 2005, "Generic Letter 2003-01: Control Room Habitability – Design Bases, Licensing Bases and Inleakage Testing Results." (ADAMS Accession No. ML050390308).

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B 3.7 PLANT SYSTEMS

B 3.7.5 Control Building Chiller (CBC) System

BASES

BACKGROUND	The CBC System provides temperature control for the control building HVAC system under both normal and accident conditions. The CBC System consists of two independent, redundant subsystems that provide cooling of recirculated control room air. Each subsystem consists of cooling coils, fans, a chiller, a compressor, ductwork, dampers, and instrumentation and controls to provide for control room temperature control. The CBCs receive water from both the ESW System and the Well Water System. Only the ESW System is required by this LCO. The CBC System is designed to provide a controlled environment under both normal and accident conditions. Because the source of control room air is common with the air distributed to the remainder of the control building, no special means of isolating just the control room is provided. A single subsystem provides the required temperature control to maintain a suitable control building environment. The design conditions for the control room environment are 75°F dry bulb and 50% relative humidity. The CBC System operation in maintaining the control room temperature is discussed in the UFSAR, Section 9.4.4.2 (Ref. 1).
APPLICABLE SAFETY ANALYSES	The design basis of the CBC System is to maintain the control room temperature for a 30 day continuous occupancy. The CBC System components are arranged in redundant safety related subsystems. During emergency operation, the CBC System maintains a habitable environment and ensures the OPERABILITY of components in the control room. A single failure of a component of the CBC System, assuming a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for control room temperature control. The CBC System is designed in accordance with Seismic Category I requirements. The CBC System is capable of removing sensible and latent heat loads from the control room, including consideration of equipment heat loads and personnel occupancy requirements to ensure equipment OPERABILITY. The CBC System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

(continued)

BASES (continued)

LCO

Two independent and redundant subsystems of the CBC System are required to be OPERABLE to ensure that at least one is available, assuming a single failure disables the other subsystem. Total system failure could result in the equipment operating temperature exceeding limits.

The CBC System is considered OPERABLE when the individual components necessary to maintain the control building temperature are OPERABLE in both subsystems. These components include the cooling coils, fans, chillers, compressors, ductwork, dampers, and associated instrumentation and controls. A CBC is considered inoperable if it trips and cannot be promptly restarted. Therefore, a CBC that spuriously trips and can subsequently be restarted in a reasonable period of time, is not considered inoperable. ~~In addition, during conditions in MODES other than MODES 1, 2, and 3 when the CBC System is required to be OPERABLE (e.g., during CORE ALTERATIONS), the necessary portions of the ESW System, RWS System, and the Ultimate Heat Sink are also required as part of the OPERABILITY requirements covered by this LCO.~~

In addition, the necessary portions of the River Water Supply System and the Ultimate Heat Sink, Emergency Service Water System, and Control Building/ Standby Gas Treatment Instrument Air System are also required to provide appropriate cooling, ventilation flowpath, and temperature control for the CBC System.

APPLICABILITY

~~In MODE 1, 2, or 3, the CBC System must be OPERABLE to ensure that the control building temperature will not exceed equipment OPERABILITY limits.~~

~~In MODES 4 and 5, the probability and consequences of a Design Basis Accident (DBA) are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the CBC System OPERABLE is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:~~

~~a. During CORE ALTERATIONS; and~~

~~b. During movement of irradiated fuel assemblies in the secondary containment.~~

The CBC System must be OPERABLE during movement of irradiated fuel assemblies in the secondary containment.

(continued)

BASES (continued)

ACTIONS

A.1

With one CBC subsystem inoperable, the inoperable CBC subsystem must be restored to OPERABLE status within 30 days. With the unit in this condition, the remaining OPERABLE CBC subsystem is adequate to perform the control building air conditioning function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in loss of the control building air conditioning function. The 30 day Completion Time is based on the low probability of an event occurring requiring control building isolation, the consideration that the remaining subsystem can provide the required protection, and the availability of alternate cooling methods.

B.1 and B.2

If both CBC subsystems are inoperable, the CBC System may not be capable of performing its intended function. Therefore, the control building area temperatures are required to be monitored to ensure that temperatures are being maintained low enough that equipment in the control building is not adversely affected. To ensure temperatures in the control building are maintained low enough, temperatures are required to be monitored in the control room as well as both essential switchgear rooms. Although design conditions for the control room environment are 75°F dry bulb and 50% relative humidity, maintaining control room area temperatures less than 90°F during the 72 hour Completion Time assures that safety-related equipment will remain less than the maximum operating temperature of 104°F. With the control building temperatures being maintained within the temperature limit, 72 hours is allowed to restore a CBC subsystem to OPERABLE status. This Completion Time is reasonable considering that the control building area temperatures are being maintained within limits and the low probability of an event occurring requiring control building isolation.

~~C.1 and C.2~~

~~In MODE 1, 2, or 3, if the inoperable CBC subsystem(s) cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE that minimizes risk. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.~~

(continued)

BASES

C C

ACTIONS (continued)

~~D~~.1, ~~D.2.1~~ and ~~D~~.2.~~2~~

~~LCO 3.0.3 is not applicable in MODE 4 or 5. However, since irradiated fuel assembly movement can occur in MODE 1, 2, or 3, the Required Actions of Condition D are modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.~~

During movement of irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~, if Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE CBC subsystem may be placed immediately in operation. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent actuation will occur, and that any active failure will be readily detected.

C

An alternative to Required Action ~~D~~.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the ~~unit~~ facility in a condition that minimizes risk.

If applicable, ~~CORE ALTERATIONS and~~ movement of irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position.

~~E.1 and E.2~~

~~LCO 3.0.3 is not applicable in MODE 4 or 5. However, since irradiated fuel assembly movement can occur in MODE 1, 2, or 3, the Required Actions of Condition E are modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of irradiated fuel assemblies is not a sufficient reason to require a reactor shutdown.~~

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(continued)

D

BASES

ACTIONS continued

~~E~~.1 ~~and E.2~~ ~~(continued)~~

During movement of irradiated fuel assemblies in the secondary containment ~~or during CORE ALTERATIONS~~, if Required Actions B.1 and B.2 cannot be met within the required Completion Times, action must be taken to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control building. This places the ~~unit~~ facility in a condition that minimizes risk.

~~If applicable, CORE ALTERATIONS and handling~~ Movement of irradiated fuel in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

This SR verifies that the heat removal capability of the system is sufficient to remove available control building heat load. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is appropriate since significant degradation of the CBC System is not expected over this time period.

REFERENCES

1. UFSAR, Section 9.4.4.2.

B 3.7 PLANT SYSTEMS

B 3.7.8 Spent Fuel Storage Pool Water Level

BASES

BACKGROUND

The minimum water level in the spent fuel storage pool meets the assumptions of iodine decontamination factors following a fuel handling accident.

A general description of the spent fuel storage pool design is found in the UFSAR, Section 9.1.2 (Ref. 1). The assumptions of the fuel handling accident are found in the UFSAR, Section 15.2.5 (Ref. 2).

APPLICABLE SAFETY ANALYSES

The water level above the irradiated fuel assemblies is an explicit assumption of the fuel handling accident. A fuel handling accident is evaluated to ensure that the radiological consequences (calculated whole body and thyroid doses at the exclusion area and low population zone boundaries) are well below the guideline limits of 10 CFR 50.67 (Ref. 3) and meet the exposure guidelines of Regulatory Guide 1.183 (Ref. 4). A fuel handling accident could release a fraction of the fission product inventory by breaching the fuel rod cladding as discussed in UFSAR, Section 15.2.5 (Ref. 2).

The fuel handling accident is evaluated for the dropping of an irradiated fuel assembly onto the reactor core. The consequences of a fuel handling accident over the spent fuel storage pool are no more severe than those of the fuel handling accident over the reactor core, as discussed in the UFSAR, Section 15.2.5 (Ref. 2). The water level in the spent fuel storage pool provides for absorption of water soluble fission product gases and transport delays of soluble and insoluble gases that must pass through the water before being released to the secondary containment atmosphere. This absorption and transport delay reduces the potential radioactivity of the release during a fuel handling accident.

The spent fuel storage pool water level satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

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(continued)

BASES (continued)

LCO

The specified water level preserves the assumptions of the fuel handling accident analysis (Ref. 2). As such, it is the minimum required for fuel movement within the spent fuel storage pool.

APPLICABILITY

This LCO applies during movement of irradiated fuel assemblies in the spent fuel storage pool since the potential for a release of fission products exists.

ACTIONS

A.1

~~LCO 3.0.3 is not applicable in MODE 4 or 5. However, since irradiated fuel assembly movement can occur in MODE 1, 2, or 3, required Action A.1 is modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of irradiated fuel assemblies is not a sufficient reason to require a reactor shutdown.~~

When the initial conditions for an accident cannot be met, action must be taken to preclude the accident from occurring. If the spent fuel storage pool level is less than required, the movement of irradiated fuel assemblies in the spent fuel storage pool is suspended immediately. Suspension of this activity shall not preclude completion of movement of an irradiated fuel assembly to a safe position. This effectively precludes a spent fuel handling accident from occurring.

SURVEILLANCE REQUIREMENTS

SR 3.7.8.1

This SR verifies that sufficient water is available in the event of a fuel handling accident. The water level in the spent fuel storage pool must be checked periodically. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is acceptable, based on operating experience, considering that the water volume in the pool is normally stable, and all water level changes are controlled by unit procedures.

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(continued)

BASES (continued)

REFERENCES

1. UFSAR, Section 9.1.2.
2. UFSAR, Section 15.2.5.
3. 10 CFR 50.67.
4. Regulatory Guide 1.183.

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B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.2 AC Sources ~~— Shutdown~~

BASES

BACKGROUND

INSERT B3.8.2-1

~~A description of the AC sources is provided in the Bases for LCO 3.8.1, "AC Sources — Operating."~~

APPLICABLE SAFETY ANALYSES

The OPERABILITY of the minimum AC sources ~~during MODES 4 and 5 and~~ during movement of irradiated fuel assemblies in the secondary containment ensures that~~:~~

adequate

~~a.~~ ~~The facility can be maintained in the shutdown or refueling condition for extended periods;~~

~~b.~~ ~~Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and~~

~~c.~~ ~~Adequate~~ AC electrical power is provided to mitigate

a postulated

~~events postulated during shutdown, such as a~~ fuel handling accident.

~~In general, when the unit is shutdown the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or loss of all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, and 3 have no specific analyses in MODES 4 and 5. Worst case bounding events are deemed not credible in MODES 4 and 5 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and corresponding stresses result in the probabilities of occurrences significantly reduced or eliminated, and minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems.~~

~~During MODES 1, 2, and 3, various deviations from the analysis assumptions and design requirements are allowed within the~~

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(continued)

INSERT B3.8.2-1 Page 1 of 1

The unit Class 1E AC Electrical Power Distribution System AC sources consist of the offsite power sources (preferred and alternate preferred), and the onsite standby power sources (Diesel Generators (DGs) 1G-31 and 1G-21). As discussed in UFSAR Section 3.1.2.2.8 (Ref. 1), the design of the AC Electrical Power System provides independence and redundancy to ensure an available source of power to the essential buses 1A3 and 1A4.

The Class 1E AC Distribution System is divided into redundant load groups, so loss of any one group does not prevent the minimum safety functions from being performed. Each load group has connections to two preferred offsite power supplies and a single DG.

Offsite power is supplied to the 161 kV and 345 kV switchyards from the transmission network by six transmission lines. The 345 kV switchyard and the 161 kV switchyard are connected via the autotransformer, and both sections of the switchyard are connected to the transmission grid by at least two independent lines. From the 161 kV switchyard preferred power source breakers CB5550 and/or CB5560, a single overhead transmission line feeds the startup transformer. From the startup transformer, dual isolated secondary windings provide feeds to the 4160 volt essential buses, 1A3 and 1A4, through separate bus supply lines and circuit breakers. The startup transformer is sized to supply all facility power (both essential and non-essential loads). From the 161 kV switchyard alternate preferred power source breaker CB8490, a single 34.5 kV underground line feeds the standby transformer. From the standby transformer, a single 4160 volt line feeds both essential buses through separate bus supply circuit breakers. A detailed description of the offsite power network and circuits to the onsite Class 1E essential buses is found in the UFSAR, Sections 8.2.1.3 and 8.3.1.1.5 (Reference 2).

An offsite circuit consists of all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E essential bus or buses. Startup transformer (1X3) provides the normal source of power to the essential buses 1A3 and 1A4. If either 4.16 kV essential bus loses power, an automatic transfer from the startup transformer to the standby transformer (1X4) occurs.

The startup transformer and standby transformer are both sized to accommodate the starting of all required loads on receipt of an accident signal.

The onsite standby power source for 4.16 kV essential buses 1A3 and 1A4 consists of two DGs. DGs 1G-31 and 1G-21 are dedicated to essential buses 1A3 and 1A4, respectively. A DG starts automatically on an essential bus degraded voltage or undervoltage signal. After the DG has started, it automatically ties to its respective bus after offsite power is tripped as a consequence of essential bus undervoltage or degraded voltage. Following the trip of offsite power, non emergency loads powered from essential buses are load shed.

In the event of a loss of both the preferred power source and the alternate preferred power source, the required electrical loads are automatically connected to the DGs in sufficient time to mitigate the consequences of a Design Basis Accident (DBA) such as a FHA.

Ratings for the DGs satisfy the intent of Safety Guide 9 as discussed in UFSAR Section 1.8.9 (Ref. 3). DGs 1G-31 and 1G-21 have the following ratings:

a. 2850 kW continuous,

b. 3000 kW 2000 hours, and

c. 3250 kW 300 hours.

BASES

APPLICABLE SAFETY ANALYSES (continued)

~~ACTIONS. This allowance is in recognition that certain testing and maintenance activities must be conducted, provided an acceptable level of risk is not exceeded. During MODES 4 and 5, performance of a significant number of required testing and maintenance activities is also required. In MODES 4 and 5, the activities are generally planned and administratively controlled. Relaxations from typical MODES 1, 2, and 3 LCO requirements are acceptable during shutdown MODES, based on:~~

~~a.~~ ~~The fact that time in an outage is limited. This is a risk prudent goal as well as a utility economic consideration.~~

~~b.~~ ~~Requiring appropriate compensatory measures for certain conditions. These may include administrative controls, reliance on systems that do not necessarily meet typical design requirements applied to systems credited in operation MODE analyses, or both.~~

~~c.~~ ~~Prudent utility consideration of the risk associated with multiple activities that could affect multiple systems.~~

~~d.~~ ~~Maintaining, to the extent practical, the ability to perform required functions (even if not meeting MODES 1, 2, and 3 OPERABILITY requirements) with systems assumed to function during an event.~~

~~In the event of an accident during shutdown, this LCO ensures the capability of supporting systems necessary for avoiding immediate difficulty, assuming either a loss of all offsite power or a loss of all onsite (Diesel Generator (DG)) power.~~

The AC Sources ~~— Shutdown~~ satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

One offsite circuit capable of supplying the onsite Class 1E power distribution subsystem(s) of LCO 3.8.8, "Distribution Systems — ~~Shutdown,~~" ensures that all required loads are powered from offsite power. An OPERABLE DG, associated with Distribution System essential bus required OPERABLE by LCO 3.8.8, ensures that a diverse power source is available for providing electrical power support assuming a loss of the offsite circuit. Together, OPERABILITY of the required offsite circuit and DG ensures the availability of sufficient AC sources to operate the ~~plant~~ in a safe

facility

(continued)

BASES

a

LCO (continued)

manner and to mitigate the consequences of ~~postulated events during shutdown (e.g.,~~ fuel handling accident~~s)~~. Automatic initiation of the required DG ~~during shutdown conditions~~ is specified in LCO 3.3.8.1, "LOP Instrumentati~~on".~~

."

facility

The qualified offsite circuit(s) must be capable of maintaining rated frequency and voltage while connected to their respective essential bus(es), and of accepting required loads during an accident. Qualified offsite circuits are those that are described in the UFSAR and are part of the licensing basis for the ~~unit~~. The required offsite circuit consists of either: 1) either the incoming circuit breaker (1400) and disconnects (1401 and 1402) or incoming circuit breaker (2690) and disconnects (2691 and 2692), the overhead 161 kV buswork, circuit breaker (1590) and disconnect (1591), the Reserve Auxiliary Transformer (1X5), circuit breaker (8490) and disconnect (8491), the underground 34.5 kV line, the standby transformer (1X4), the 4160 volt supply line and the two supply circuit breakers (1A301 and 1A401) to essential buses 1A3 and 1A4, respectively, or 2) the incoming circuit breaker (5550 or 5560) and disconnect (5551 or 5555, respectively), the overhead 161 kV line, the startup transformer (1X3), one of the two 4160 volt supply lines and one of the two supply circuit breakers (1A302 or 1A402) to essential buses 1A3 or 1A4, respectively, if required by LCO 3.8.8.

The required DG must be capable of starting, accelerating to rated speed and voltage, connecting to its respective essential bus on detection of bus undervoltage, and accepting required loads. This sequence must be accomplished within 10 seconds. Each DG must also be capable of accepting required loads within the assumed loading sequence intervals, and must continue to operate until offsite power can be restored to the essential buses. The necessary portions of Emergency Service Water are also required to provide appropriate cooling to each required DG.

Proper sequencing of loads, including non-essential load shedding capability, is a required function for DG OPERABILITY.

In addition, proper timed logic sequence operation, is an integral part of offsite circuit OPERABILITY since its inoperability could impact the ability to start and maintain energized loads required OPERABLE by LCO 3.8.8. No automatic transfer capability is required for offsite circuits to be considered OPERABLE ~~during shutdown conditions~~.

In addition, the necessary portions of the River Water Supply System and Ultimate Heat Sink and Emergency Service Water System are also required to provide appropriate cooling for the DG.

(continued)

BASES (continued)

APPLICABILITY

The AC sources are required to be OPERABLE ~~in MODES 4 and 5 and~~ during movement of irradiated fuel assemblies in the secondary containment to provide assurance that~~:~~

~~a. Systems that provide core cooling are available;~~

systems

~~b.~~ ~~Systems~~ needed to mitigate a fuel handling accident are available~~;~~

~~c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and~~

~~d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition~~.

~~AC power requirements for MODES 1, 2, and 3 are covered in LCO 3.8.1.~~

ACTIONS

~~LCO 3.0.3 is not applicable while in MODE 4 or 5. However, since irradiated fuel assembly movement can occur in MODE 1, 2, or 3, the Actions have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of irradiated fuel assemblies would not be sufficient reason to require a reactor shutdown.~~

A.1

An offsite circuit is considered inoperable if it is not available to supply power to either of the essential buses. If both essential 4.16 kV buses are required per LCO 3.8.8, one division with offsite power available may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS and~~ fuel movement. By the allowance of the option to declare required

(continued)

BASES (continued)

ACTIONS

A.1 (continued)

features inoperable that are not powered from offsite power, appropriate restrictions can be implemented in accordance with the affected required feature(s) LCOs' ACTIONS.

Required features remaining powered from a qualified offsite power circuit, even if that circuit is considered inoperable because it is not powering other required features, are not declared inoperable by this Required Action.

A.2~~.1, A.2.2, A.2.3, B.1, B.2, and B.3,~~ , and B.1

With the required offsite circuit not available to either division, the option still exists to declare all affected required features inoperable per required Action A.1. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With the required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend ~~CORE ALTERATIONS and~~ movement of irradiated fuel assemblies in the secondary containment.

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. ~~It is further required to Immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the plant safety systems.~~

The Completion Time of Immediately is consistent with the required times for ACTIONS requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time

(continued)

facility

, and B.1

BASES

ACTIONS A.2~~.1, A.2.2, A.2.3, B.1, B.2, and B.3.~~ (continued)

during which the ~~plant~~ safety systems may be without sufficient power. Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A have been modified by a Note to indicate that when Condition A is entered with no AC power to any required essential bus, ACTIONS for LCO 3.8.8 must be Immediately entered. This Note allows Condition A to provide requirements for the loss of the offsite circuit whether or not a division is de-energized. LCO 3.8.8 provides the appropriate restrictions for the situation involving a de-energized division.

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

INSERT B3.8.2-2

~~SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, and 3. SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR.~~

~~This SR is modified by two Notes. The reason for Note 1 is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during the performance of SRs, and to preclude deenergizing a required 4160 V essential bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE.~~

~~Note 2 states that SR 3.8.1.13 is considered to be met without the ECCS initiation signals OPERABLE when the ECCS initiation signals are not required to be OPERABLE per Table 3.3.5.1-1. This SR demonstrates the DG response to an ECCS signal (either alone or in conjunction with a loss of power signal). This is consistent with the ECCS instrumentation requirements of Table 3.3.5.1-1 that do not require the ECCS signals to be OPERABLE in MODES 4 and 5 when ECCS is not required to be OPERABLE.~~

REFERENCES ~~None.~~ Insert 3.8.2-3

SURVEILLANCE REQUIREMENTS

The AC sources are designed to permit inspection and testing of all important areas and features, especially those that have a standby function, in accordance with UFSAR Section 3.1.2.2.9 (Ref. 1). Periodic component tests are supplemented by extensive functional tests (under simulated accident conditions). The SRs for demonstrating the OPERABILITY of the DGs are largely in accordance with the recommendations of Safety Guide 9 as discussed in UFSAR Section 1.8.9 (Ref. 2), Regulatory Guide 1.108 (Ref. 3), and Regulatory Guide 1.137 (Ref. 4) or as addressed in the UFSAR.

Where the SRs discussed herein specify voltage and frequency tolerances, the following summary is generally applicable. The minimum steady state output voltage of 3744 V is approximately 90% of the nominal 4160 V output voltage. This value, which is specified in ANSI C84.1, allows for voltage drop to the terminals of 4000 V motors whose minimum operating voltage is specified as 90% or 3600 V. It also allows for voltage drops to motors and other equipment down through the 120 V level where minimum operating voltage is also usually specified as 90% of name plate rating. This value also provides a large margin of safety, since safety related motors are capable of accelerating their loads at 70% of rated voltage (2912 V or 322 V). The specified maximum steady state output voltage of 4576 V or 110% of 4160 V is less than the maximum operating voltage specified for 4000 V motors (4756 V), and therefore also provides ample margin. It ensures that for a lightly loaded distribution system, the voltage at the terminals of 4000 V motors is no more than the maximum rated operating voltages. The specified minimum and maximum frequencies of the DG are 59.5 Hz and 60.5 Hz, respectively. These values are approximately equal to ± 1% of the 60 Hz nominal frequency and are conservative with respect to the recommendations found in Regulatory Guide 1.9 (Ref. 5).

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.2.1

This SR ensures proper circuit continuity for the offsite AC electrical power supply to the onsite distribution network and availability of offsite AC electrical power. The breaker alignment verifies that at least the minimum required offsite power supply breakers are in their correct position to ensure that distribution buses and loads are connected to either the preferred power source or the alternate preferred power source and that appropriate independence of offsite circuits is maintained. This can be accomplished by verifying that an essential bus is energized, and that the status of offsite supply breakers that are displayed in the control room are correct. The status of manual disconnects is verified administratively. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is adequate since breaker position is not likely to change without the operator being aware of it and because its status is displayed in the control room.

SR 3.8.2.2 and SR 3.8.2.7

These SRs help to ensure the availability of the standby electrical power supply to mitigate a FHA and maintain the facility in a safe condition.

To minimize the wear on moving parts that do not get lubricated when the engine is not running, these SRs have been modified by a Note to indicate that all DG starts for these Surveillances may be preceded by an engine prelube period and (for SR 3.8.2.2 only) followed by a warmup prior to loading.

SURVEILLANCE REQUIREMENTS

SR 3.8.2.2 and SR 3.8.2.7 (continued)

For the purposes of this testing, the required DG is manually started from standby conditions. Standby conditions for a DG mean that the diesel engine coolant and oil are being continuously circulated and temperature is being maintained consistent with manufacturer recommendations.

In order to reduce stress and wear on diesel engines during testing, the manufacturer of the DGs installed at the DAEC recommends a modified start in which the starting speed of the DG is limited, warmup is limited to this lower speed, and the DGs are gradually accelerated to synchronous speed prior to loading. These start procedures are the intent of Note 2 (SR 3.8.2.2).

SR 3.8.2.7 requires that the required DG starts from standby conditions and achieves required voltage and frequency (i.e. - voltage $\geq$ 3744 V and frequency $\geq$ 59.5 Hz) within 10 seconds; and achieves steady state voltage $\geq$ 3744 V and $\leq$ 4576 V and frequency $\geq$ 59.5 Hz and $\leq$ 60.5 Hz. The 10 second start requirement supports the assumptions in the accident analysis of UFSAR, Section 15.2.1 (Ref. 6). If a modified start is not used, the 10 second start requirement of SR 3.8.2.7 applies. In addition to the SR requirements, the time for the DG to reach steady state operation, unless the modified DG start method is employed, is periodically monitored and the trend evaluated to identify degradation of governor and voltage regulator performance.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The normal Frequency for SR 3.8.2.2 is consistent with Safety Guide 9. The Frequency for SR 3.8.2.7 is a reduction in cold testing consistent with Generic Letter 84-15 (Ref. 7). These Frequencies provide adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.2.3

This Surveillance verifies that the required DG is capable of synchronizing and can be manually loaded to ≥ 2750 kW and ≤ 2950 kW, providing a 200 kW range centered on the continuous duty rating of the DG of 2850 kW. This range ensures that the DG is tested at a load above the maximum expected accident load. A minimum run time of 60 minutes is required to stabilize engine temperatures, while minimizing the time that the DG is connected to the offsite source.

Although no power factor requirements are established by this SR, the DG is normally operated at a power factor greater than 0.9 lagging. While a value of 0.8 is the design rating of the machine, the machine is operated at power factors greater than 0.9 for normal operations and greater than 0.8 for surveillance testing. The load limit is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The normal Frequency for this Surveillance is consistent with Safety Guide 9.

The reason for Note 1 is to preclude requiring the OPERABLE DG from being paralleled with the offsite power network or otherwise rendered inoperable during performance of the Surveillance, and to preclude deenergizing a required 4160 V essential Bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that this SR must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE. Note 2 modifies this Surveillance to indicate that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized. Note 3 modifies this Surveillance by stating that momentary transients because of changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test.

Note 4 indicates that this Surveillance should be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations.

Note 5 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.2.4

This SR provides verification that the level of fuel oil in the day tank is at or above the level at which the day tank low level alarm is annunciated. This low level alarm should only be received if the automatic fuel oil transfer instrumentation is not functioning properly. The level is expressed as an equivalent volume in gallons, and is selected to ensure adequate fuel oil for a minimum of approximately one hour of DG operation at full load, considering a conservative fuel consumption rate. Verification that at least a one hour supply of fuel oil exists in a day tank provides assurance that a DG can operate continuously, and also allows the operating crew sufficient time to take corrective action should the automatic fuel oil transfer system not function properly.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and facility operators would be aware of any large uses of fuel oil during this period.

SR 3.8.2.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Testing for water content and removal of water from the fuel oil in the required day tank as necessary, eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water, as necessary, minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Surveillance Frequencies meet the intent of Regulatory Guide 1.137 (Ref. 10). This SR is for preventive maintenance. The presence of water does not necessarily represent a failure of this SR provided that accumulated water is removed during performance of this Surveillance.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.2.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. It is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for manual fuel transfer systems are OPERABLE. Additional assurance of fuel oil transfer pump OPERABILITY is provided by meeting the testing requirements for pumps that are contained in the ASME Code (Ref. 8). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.8.2.7

See SR 3.8.2.2.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.2.8

Each DG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the DG load response characteristics and the capability to reject the largest single load and return to the required voltage and frequency (i.e. - voltage ≥ 3744 V and ≤ 4576 V and frequency ≥ 59.5 Hz and ≤ 60.5 Hz) within predetermined periods of time (i.e., 1.3 seconds for voltage and 3.9 seconds for frequency) while maintaining an acceptable margin to the overspeed trip. This Surveillance may be accomplished by tripping its associated single largest post-accident load with the DG solely supplying the bus.

As specified by IEEE-308 (Ref. 9), the load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower. For both DGs, this represents 64.5 Hz, equivalent to 75% of the difference between nominal speed and the overspeed trip setpoint.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG from being paralleled with the offsite power network or otherwise rendered inoperable during performance of the Surveillance, and to preclude deenergizing a required 4160 V essential Bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that this SR must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE.

The time, voltage, and frequency tolerances specified in the Bases for this SR are derived from UFSAR Table 8.3-1 (Ref. 10) recommendations for response during load sequence intervals. The voltage and frequency are consistent with the design range of the equipment powered by the DG. SR 3.8.2.8.a corresponds to the frequency excursion, while SR 3.8.2.8.b and SR 3.8.2.8.c are the steady state voltage and frequency to which the system must recover following load rejection within a predetermined time period. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.2.9

This Surveillance demonstrates that DG non-critical protective functions (e.g., high jacket water temperature and low lubricating oil pressure) are bypassed and critical protective functions (engine overspeed and generator differential current) trip the DG to avert substantial damage to the DG unit. The non-critical trips are bypassed during DBAs and LOOPs and provide an alarm on an abnormal engine condition. This alarm provides the operator with sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG from being paralleled with the offsite power network or otherwise rendered inoperable during performance of the Surveillance, and to preclude deenergizing a required 4160 V essential Bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that this SR must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is based on engineering judgment and takes into consideration plant conditions required to perform the Surveillance. Operating experience has shown that these components usually pass the SR when performed at this Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.8.2.10

As specified by Regulatory Guide 1.108 (Ref. 3), paragraph 2.a.(6), this Surveillance ensures that the manual synchronization and load transfer from the DG to the offsite source can be made and that the DG can be returned to ready-to-load status when offsite power is restored. The DG is considered to be in ready-to-load status when the DG is at rated speed and voltage, the output breaker is open and can receive an auto-close signal on bus undervoltage, and the individual pump timers are reset.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG from being paralleled with the offsite power network or otherwise rendered inoperable during performance of the Surveillance, and to preclude deenergizing a required 4160 V essential Bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that this SR must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

INSERT 3.8.2-3

1. UFSAR, Section 3.1.2.2.9
2. UFSAR, Section 1.8.9.
3. Regulatory Guide 1.108.
4. Regulatory Guide 1.137.
5. Regulatory Guide 1.9.
6. UFSAR, Section 15.2.1
7. Generic Letter 84-15.
8. ASME Code for Operation and Maintenance of Nuclear Power Plants.
9. IEEE Standard 308.
10. UFSAR, Table 8.3-1.

Although the LOCA is no longer applicable to the permanently shut down and defueled DAEC, the fuel oil capacity requirement remains valid and bounding.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting

BASES

BACKGROUND

The Diesel Generators (DGs) are provided with a storage tank having a fuel oil capacity sufficient to operate one DG for a period of 7 days while the DG is supplying maximum post Loss of Coolant Accident (LOCA) load demand ~~discussed in UFSAR, Section 9.5.4 (Ref. 1) and Regulatory Guide 1.137 (Ref. 2)~~. The maximum load demand is calculated using the assumption that only one DG is available. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from storage tank to the day tanks by either of two transfer pumps. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe or valve, to result in the loss of more than one DG. The outside tanks, pumps, and piping are located underground.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the fuel oil. Regulatory Guide 1.137 (Ref. 2) addresses the recommended fuel oil practices as supplemented by ANSI N195 (Ref. 3). The fuel oil properties governed by these SRs are the water and sediment content, the kinematic viscosity (or Saybolt Universal Viscosity), specific gravity (or API gravity), and total particulate contamination.

The DG Lubrication System is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. The DG Lube Oil System is designed to provide automatic lube oil makeup to the DG crankcase for a minimum of 7 days of operation per UFSAR Section 8.3.1 (Ref. 7). This supply is sufficient to allow the operator to replenish lube oil from outside sources.

Each DG has two independent starting air supply systems each with adequate capacity for five successive normal start attempts per air receiver without recharging. A minimum of fifteen normal DG starts are provided for each DG per UFSAR

(continued)

BASES

BACKGROUND (continued)

Section 8.3.1 (Ref. 7).

APPLICABLE SAFETY ANALYSES

~~The initial conditions of Design Basis Accident (DBA) and transient analyses in UFSAR, Chapter 15 (Ref. 5), assume Engineered Safety Feature (ESF) Systems are OPERABLE.~~ The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power ~~to ESF~~ systems ~~, so that fuel, Reactor Coolant System, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.5, Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) System; and Section 3.6, Containment Systems.~~

required

to ensure safe storage of spent fuel.

Since diesel fuel oil, lube oil, and starting air subsystem support the operation of the standby AC power sources, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

the facility

LCO

Stored diesel fuel oil is required to have sufficient supply for 7 days of full load operation. It is also required to meet specific standards for quality. Additionally, sufficient lube oil supply must be available to ensure the capability to operate at full load for 7 days. This requirement, in conjunction with an ability to obtain replacement supplies within 7 days, supports the availability of DGs required to ~~shut down the reactor and to~~ maintain ~~it~~ in a safe condition for ~~an Abnormal Operational Transient or~~ a postulated DBA with loss of offsite power. DG day tank fuel oil requirements, as well as transfer capability from the storage tank to the day tanks, are addressed in ~~LCO 3.8.1, "AC Sources — Operating," and~~ LCO 3.8.2, "AC Sources ~~— Shutdown~~."

The starting air system is required to have a minimum capacity for five successive normal DG start attempts without recharging the air start receivers.

(continued)

the facility

BASES (continued)

APPLICABILITY

The AC sources (~~LCO 3.8.1 and~~ LCO 3.8.2) are required to ensure the availability of the required power to ~~shut down the reactor and~~ maintain ~~it~~ in a safe ~~shutdown~~ condition after ~~an Abnormal Operational Transient or~~ a postulated DBA. Because stored diesel fuel oil, lube oil, and starting air subsystem support ~~LCO 3.8.1 and~~ LCO 3.8.2, stored diesel fuel oil, lube oil, and starting air are required to be within limits when the associated DG is required to be OPERABLE.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each DG for Conditions B, E, and F. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DG subsystem. Complying with the Required Actions for one inoperable DG subsystem may allow for continued operation, and subsequent inoperable DG subsystem(s) governed by separate Condition entry and application of associated Required Actions.

A.1

In this Condition, the 7 day fuel oil supply for a DG is not available. However, the Condition is restricted to fuel oil level reductions that maintain at least a 6 day supply. The fuel oil level equivalent to a 6 day supply is 32,689 gallons. These circumstances may be caused by events such as:

a. Full load operation required for an inadvertent start while at minimum required level; or

b. Feed and bleed operations that may be necessitated by increasing particulate levels or any number of other oil quality degradations.

This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of the fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required level prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the fact that procedures will

(continued)

BASES

ACTIONS

A.1 (continued)

be initiated to obtain replenishment, and the low probability of an event during this brief period.

B.1

In this ~~Conditions~~ Condition, the 7 day lube oil inventory, i.e., sufficient lube oil to support 7 days of continuous DG operation at full load conditions is not available. However, the Condition is restricted to lube oil level reductions that maintain at least a 6 day supply. The lube oil inventory equivalent to a 6 day supply is 221 gallons. This restriction allows sufficient time for obtaining the requisite replacement volume. A period of 48 hours is considered sufficient to complete restoration of the required volume prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the low rate of usage, the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

C.1

This Condition is entered as a result of a failure to meet the acceptance criterion for particulates. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling), contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, since particulate concentration is unlikely to change significantly between Surveillance Frequency intervals, and since proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a period prior to declaring both DGs inoperable. The 30 day Completion Time starts when initial analysis results are known and allows for further evaluation, resampling, and re-analysis of the DG fuel oil.

D.1

With the new fuel oil properties defined in the Bases for SR 3.8.3.3 not within the required limits, a period of 30 days is allowed for restoring the stored fuel oil properties. This period provides sufficient time to test the stored fuel oil to determine that

(continued)

BASES

ACTIONS

D.1 (continued)

the mixture of new fuel oil and previously stored fuel oil remains acceptable, or to restore the stored fuel oil properties. If testing of the new fuel oil reveals fuel oil properties are not within limits, those properties not within limits must be tested, or restored to within limits. This restoration may involve feed and bleed procedures, filtering, or combination of these procedures. Even if a DG start and load was required during this time interval and the fuel oil properties were outside limits, there is high likelihood that the DG would still be capable of performing its intended function. Note that when the entire inventory of stored fuel oil is replaced with new fuel oil, the new fuel oil properties must be within specification prior to declaring the DGs OPERABLE.

E.1

With all starting air receivers associated with a DG with pressure < 150 psig, sufficient capacity for five successive DG start attempts may not exist. However, as long as any one receiver's pressure is ≥ 75 psig, there is adequate capacity for at least one start attempt (as shown during initial plant startup testing when successful DG starting was demonstrated with air receiver pressure as low as 50 psig), and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

F.1

With a Required Action and associated Completion Time not met, or the stored diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than addressed by Conditions A through E, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the storage tank to support a single DG's operation for 7 days at full load. The fuel oil level equivalent to a 7 day supply is 37,967 gallons when calculated in accordance with References 2 and 3. The required fuel storage volume is determined using the most limiting energy content of the stored fuel. Using the known correlation of diesel fuel oil absolute specific gravity or API gravity to energy content, the required diesel output, and the corresponding fuel consumption rate, the onsite fuel storage volume required for 7 days of operation can be determined. SR 3.8.3.3 requires new fuel to be tested to verify that the absolute specific gravity or API gravity is within the range assumed in the diesel fuel oil consumption calculations. The 7 day period is sufficient time to place the ~~unit~~ facility in a safe ~~shutdown~~ condition and to bring in replenishment fuel from an offsite location.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and ~~unit~~ facility operators would be aware of any large uses of fuel oil during this period.

SR 3.8.3.2

This Surveillance ensures that sufficient lubricating oil inventory is available to support at least 7 days of full load operation for each DG. The lube oil inventory equivalent to a 7 day supply is 257 gallons and is based on the DG manufacturer's consumption values for the run time of the DG. Implicit in this SR is the requirement to verify the capability to transfer the lube oil from the lube oil makeup tank to the DG. The requirement is considered to be fulfilled by observing that the DG lube oil sump level is maintained in the normal band by the lube oil sump level controller.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. A Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run time are closely monitored by the plant staff.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.3

The tests listed below are a means of determining that the new and stored fuel oil has not been contaminated with substances that would have an immediate detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the fuel oil may be added to the storage tank without concern for contaminating the entire volume of fuel oil in the storage tank. These tests are to be conducted prior to adding the new fuel to the storage tank, but in no case is the time between receipt of new fuel and conducting the tests to exceed 31 days. The tests, limits, and applicable ASTM Standards are as follows:

a. Sample the new fuel oil in accordance with ASTM D975-77 (Ref. 6);

b. Verify in accordance with the tests specified in ASTM D1298-85 (Ref. 6) that the sample has an absolute specific gravity at 60/60°F of ≥ 0.83 and ≤ 0.89 or an API gravity at 60°F of ≥ 28° and ≤ 38°;

c. Verify in accordance with ASTM D975-77, using ASTM Test Method D88-81, that viscosity at 100°F is ≥ 32.6 and ≤ 40.1 Saybolt Universal Seconds;

d. Verify that water and sediment are within limits when tested in accordance with ASTM D975-77 (Ref. 6).

Failure to meet any of the above limits is cause for rejecting the new fuel oil, but does not represent a failure to meet the LCO concern since the fuel oil is not added to the storage tank.

Within 31 days following the initial new fuel oil sample, the fuel oil is analyzed to establish that the other properties specified in Table 1 of ASTM D975-77 (Ref. 6) are met for new fuel oil when tested in accordance with ASTM D975-77 (Ref. 6), except that a cloud point limit of 0°C has been selected due to fuel oil being stored underground and below the frost line, and that flash point and cetane number are not required. The 31 day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate

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(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.3 (continued)

effect on DG operation. This Surveillance ensures the availability of high quality fuel oil for the DGs.

Fuel oil degradation during long term storage shows up as an increase in particulate, mostly due to oxidation. The presence of particulate does not mean that the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure.

Particulate concentrations should be determined in accordance with ASTM D2276-89 (Ref. 6), Method A2 or A3. These methods involve a gravimetric determination of total particulate concentration in the fuel oil and have a limit of 10 mg/l. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing.

The Frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between Frequency intervals.

SR 3.8.3.4

This Surveillance ensures that, without the aid of any refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of five engine start cycles per air receiver without recharging. The pressure specified in this SR is intended to reflect a conservative value for which the five starts can be accomplished, assuming only one air start receiver is pressurized.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and the Air Start System for each DG.

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(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Checking for the presence of water, and removing water, as necessary, eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Surveillance Frequencies are consistent with those recommended and established by Regulatory Guide 1.137 (Ref. 2). This SR is for preventive maintenance. The presence of water does not necessarily represent failure of this SR, provided the water is removed during performance of the Surveillance.

REFERENCES

1. ~~UFSAR, Section 9.5.4.~~ ← [Deleted]
2. Regulatory Guide 1.137.
3. ANSI N195, 1976.
4. [Deleted]
5. UFSAR, Chapter 15.
6. ASTM Standards: D975-77, D1298-85 and D2276-89.
7. UFSAR, Section 8.3.1.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.5 DC Sources ~~— Shutdown~~

BASES

BACKGROUND

Insert B3.8.5-1

~~A description of the DC sources is provided in the Bases for LCO 3.8.4, "DC Sources — Operating."~~

APPLICABLE SAFETY ANALYSES

~~The initial conditions of Design Basis Accident and transient analyses in the UFSAR, Chapter 15 (Ref. 1), assume that Engineered Safety Feature Systems are OPERABLE.~~ The 125 VDC Electrical Power System provides normal and emergency DC electrical power for the Diesel Generators (DGs), emergency auxiliaries, and control and switching during ~~all MODES of operation and during~~ movement of irradiated fuel assemblies in the Secondary Containment.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum DC electrical power sources during ~~MODES 4 and 5 and during~~ movement of irradiated fuel assemblies in the secondary containment ensures that~~:~~

~~a.~~ ~~The facility can be maintained in the shutdown or refueling condition for extended periods;~~

~~b.~~ ~~Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and~~

a

a

~~c.~~ ~~A~~dequate DC electrical power is provided to mitigate ~~events~~ postulated ~~during shutdown, such as a~~ fuel handling accident.

The DC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

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BACKGROUND

The DC Electrical Power System provides the AC Emergency Power System with control power. It also provides both motive and control power to selected safety related equipment. As discussed in UFSAR Section 3.1.2.2.8 (Ref. 1), the DC Electrical Power System is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The DC Electrical Power System also conforms to the intent of the recommendations of Safety Guide 6, as discussed in UFSAR Section 1.8.6. (Ref. 2) and IEEE-308 (Ref. 3).

The DC power sources provide both motive and control power to selected safety related equipment, as well as circuit breaker control power for some of the 4160 V, and all 480 V and lower, AC Distribution Systems. Each 125 VDC subsystem is energized by one 125 V station service battery and two 125 V battery chargers (one normally inservice charger and one swing charger that is able to separately charge either 125 VDC divisional battery). Each battery is exclusively associated with a single 125 V bus. The normal chargers are supplied from the same essential AC load groups for which the associated DC subsystem supplies the control power, while the swing 125 VDC charger can be supplied from either essential AC division. The loads between the redundant 125 VDC subsystems are not transferable. The 125 VDC subsystems also provide control and instrumentation power for their respective DG.

During normal operation, the DC loads are powered from the battery chargers with the batteries floating on the system, acting as a voltage regulator. If a battery is disconnected from its distribution bus and only a charger is supplying bus voltage, the associated Distribution System shall be considered inoperable, as it cannot supply the peak power required for some event scenarios.

In case of loss of power to any battery charger, the DC loads are automatically powered from the battery until the redundant charger or swing charger is placed in service by operator action.

The DC Power Distribution System is described in more detail in Bases for LCO 3.8.8, "Distribution System."

Each 125 VDC battery (with a minimum of 59 cells) has adequate storage capacity to carry the control and essential instrumentation power continuously for approximately 4 hours and the emergency loads for their required length of time.

BACKGROUND (continued)

Each DC battery is separately housed in a ventilated room apart from its charger and distribution centers. Each subsystem is located in an area separated physically and electrically from the other subsystems to ensure that a single failure in one subsystem does not cause a failure in a redundant subsystem. There is no sharing between redundant Class 1E subsystems such as batteries, battery chargers, or distribution panels except for the swing 125 VDC battery charger which is mechanically interlocked to prevent being simultaneously connected to both distribution buses with double isolation circuit breakers.

The batteries for DC electrical power subsystems are sized to produce required capacity at 80% of nameplate rating, corresponding to warranted capacity at the end of a nominal 20 year service cycle. The expected life of the batteries may exceed 20 years and will be adjusted based on engineering evaluations of each battery's capacity trend data as the batteries age. The minimum design voltage limit is 105V for the 125 VDC subsystems.

Each battery charger of DC electrical power subsystem has ample power output capacity for the steady state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each station service battery charger has sufficient capacity to restore the battery from the design minimum charge to its fully charged state while supplying normal steady state loads (Ref. 10).

BASES (continued)

LCO

The DC electrical power subsystems ~~— with:~~ (i.e., Division I and Division II 125 VDC subsystems each consisting of one 125 V battery, the associated battery charger or the swing battery charger and the corresponding control equipment and interconnecting cabling supply power to the associated distribution system ~~; and, the 250 VDC subsystem consisting of the 250V battery, one of the two battery chargers and the corresponding control equipment and interconnecting cabling sufficient to provide electrical power to the outboard RHR-SDC suction isolation valve (MO-1909),~~) are required to be OPERABLE to support required DC distribution subsystems required OPERABLE by LCO 3.8.8, "Distribution Systems ~~— Shutdown~~." This requirement ensures a the availability of sufficient DC electrical power sources to operate the facility ~~unit~~ in a safe manner and to mitigate the consequences of postulated ~~events during shutdown (e.g.,~~ fuel handling accident~~s)~~.

APPLICABILITY

The DC electrical power sources required to be OPERABLE ~~in MODES 4 and 5 and~~ during movement of irradiated fuel assemblies in the secondary containment to ensure that required ~~provide assurance that:~~

~~a.~~ ~~Required features to provide core cooling are available;~~

~~b.~~ ~~Required~~ features needed to mitigate a fuel handling accident are available~~;~~

~~c.~~ ~~Required features necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and~~

~~d.~~ ~~Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition~~.

~~The DC electrical power requirements for MODES 1, 2, and 3 are covered in LCO 3.8.4.~~

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(continued)

BASES (continued)

ACTIONS

~~LCO 3.0.3 is not applicable while in MODE 4 or 5. However, since irradiated fuel assembly movement can occur in MODE 1, 2, or 3, the Actions have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of irradiated fuel assemblies would not be sufficient reason to require a reactor shutdown.~~

A.1, and A.2~~.1, A.2.2, and A.2.3~~

If more than one DC distribution subsystem is required according to LCO 3.8.8, the DC electrical power subsystems remaining OPERABLE with one or more DC electrical power subsystems inoperable may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS and~~ fuel movement. By allowance of the option to declare required features inoperable with associated DC electrical power subsystems inoperable, appropriate restrictions are implemented in accordance with the affected system LCOs' ACTIONS. However, in many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend ~~CORE ALTERATIONS and~~ movement of irradiated fuel assemblies in the secondary containment).

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. ~~It is further required to immediately initiate action to restore the required DC electrical power subsystems and to continue this action until restoration is accomplished in order to provide the necessary DC electrical power to the plant safety systems.~~

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(continued)

and

BASES (continued)

ACTIONS

A.1, A.2~~.1, A.2.2, A.2.3, and A.2.4~~ (continued)

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. ~~The restoration of the required DC electrical power subsystems should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.~~

SURVEILLANCE REQUIREMENTS

~~SR 3.8.5.1~~

INSERT B3.8.5-2

~~SR 3.8.5.1 requires performance of all Surveillances required by SR 3.8.4.1 through SR 3.8.4.8. Therefore, see the corresponding Bases for LCO 3.8.4 for a discussion of each SR.~~

~~This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DC sources from being discharged below their capability to provide the required power supply or otherwise rendered inoperable during the performance of SRs. It is the intent that these SRs must still be capable of being met, but actual performance is not required.~~

~~REFERENCES~~

~~1. UFSAR, Chapter 15.~~

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SURVEILLANCE REQUIREMENTS

SR 3.8.5.1

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the charging system and the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or a battery cell) in a fully charged state. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the manufacturer's minimum float voltage recommendations (Ref. 4). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is consistent with manufacturer recommendations and with the intent of IEEE-450 (Ref. 7).

SR 3.8.5.2

Visual inspection to detect corrosion of the battery cells and connections, or measurement of the resistance of each inter-cell, inter-rack, inter-tier, and terminal connection, provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The connection resistance limits established for this SR must be no more than 20% above the resistance as measured during installation or not above the ceiling value established by the manufacturer. The resulting limits are 5.0 E-5 ohms for inter-cell connections and 1.4 E-4 ohms for inter-rack connections, inter-tier connections and terminal connections. The Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is controlled under the Surveillance Frequency Control Program. This Frequency is considered acceptable based on operating experience related to detecting corrosion trends.

SR 3.8.5.3

Visual inspection of the battery cells, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The presence of physical damage or deterioration does not necessarily represent a failure of this SR, provided an evaluation determines that the physical damage or deterioration does not affect the OPERABILITY of the battery (its ability to perform its design function).

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency for this SR is consistent with the intent of IEEE-450 (Ref. 7), which recommends detailed visual inspection of cell condition and rack integrity.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.5.4 and SR 3.8.5.5

Visual inspection and resistance measurements of inter-cell, inter-rack, inter-tier, and terminal connections provide an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anti-corrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection.

The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure of this SR, provided visible corrosion is removed during performance of this Surveillance. The connection resistance limits for this SR must be no more than 20% above the resistance as measured during installation, or not above the ceiling value established by the manufacturer. The resulting limits are 5.0 E-5 ohms for inter-cell connections and 1.4 E-4 ohms for inter-rack connections, inter-tier connections and terminal connections.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency of these SRs is consistent with the intent of IEEE-450 (Ref. 7), which recommends detailed visual inspection of cell condition and inspection of cell to cell and terminal connection resistance.

SR 3.8.5.6

Battery charger capability requirements are based on the design capacity of the chargers (Ref. 3). According to the recommendations of Regulatory Guide 1.32 (Ref. 8), the battery charger supply is required to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the facility during these demand occurrences. The minimum required amperes ensures that these requirements can be satisfied. The minimum required voltage ensures that the requirements are satisfied at the minimum float voltage that the battery chargers are normally set for. Charger operation at an output greater than the minimum required voltage and amperage, such as during equalize mode, demonstrates the battery charger meets, and exceeds, the Surveillance Requirements.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency is acceptable, given the facility conditions required to perform the test and the other administrative controls existing to ensure adequate charger performance during these intervals.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.5.7

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length corresponds to the design duty cycle requirements as specified in Reference 4. The voltage of each cell shall be determined after the discharge. Following discharge, battery cell parameters must be restored in accordance with LCO 3.8.6. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

This SR is modified by two Notes. Note 1 allows the performance of a performance discharge test in lieu of a service test. Note 2 precludes requiring the OPERABLE DC sources from being discharged below their capability to provide the required power supply or otherwise rendered inoperable during the performance of SRs. It is the intent that this SR must still be capable of being met, but actual performance is not required.

The modified performance discharge test is a simulated duty cycle consisting of just two rates; the one minute rate published for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance test, both of which envelope the duty cycle of the service test. Since the ampere-hours removed by a rated one minute discharge represents a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test should remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

A modified discharge test is a test of the battery capacity and its ability to provide a high rate, short duration load (usually the highest rate of the duty cycle). This will often confirm the battery's ability to meet the critical period of the load duty cycle, in addition to determining its percentage of rated capacity. Initial conditions for the modified performance discharge test should be identical to those specified for a service test.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.5.8

A battery performance discharge test is a test of constant current capacity of a battery, normally done in the as found condition, after having been in service, to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage.

A battery modified performance test is described in the Bases for SR 3.8.5.7. Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.5.8; however, only the modified performance discharge test may be used to satisfy SR 3.8.5.8 while satisfying the requirements of SR 3.8.5.7 at the same time.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DC sources from being discharged below their capability to provide the required power supply or otherwise rendered inoperable during the performance of SRs. It is the intent that this SR must still be capable of being met, but actual performance is not required.

The acceptance criteria for this Surveillance is consistent with IEEE-450 (Ref. 7) and IEEE-485 (Ref. 9). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer's rating. A capacity of 80% shows that the battery rate of deterioration is increasing, even if there is ample capacity to meet the load requirements. The Frequency for this test is normally controlled under the Surveillance Frequency Control Program. However, if the battery shows degradation, or if the battery has reached 85% of its expected life and capacity is < 100% of the manufacturer's rating, the Surveillance Frequency is reduced to 12 months. However, if the battery shows no degradation but has reached 85% of its expected life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity ≥ 100% of the manufacturer's rating. Degradation is indicated, according to IEEE-450 (Ref. 7), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is 10% below the manufacturer's rating. All these Frequencies are consistent with the recommendations in IEEE-450 (Ref. 7).

REFERENCES

1. UFSAR, Section 3.1.2.2.8.
2. UFSAR, Section 1.8.6.
3. IEEE Standard 308, 1971.
4. Calculation: CAL-E08-008, latest approved revision.
5. UFSAR, Chapter 15.
6. Not used.
7. IEEE Standard 450, 1980.
8. Regulatory Guide 1.32, February 1977.
9. IEEE Standard 485, 1983.
10. UFSAR, Section 8.3.2

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Cell Parameters

BASES

BACKGROUND

This LCO delineates the limits on electrolyte temperature, level, float voltage, and specific gravity for the DC electrical power subsystems batteries. A discussion of these batteries and their OPERABILITY requirements is provided in the Bases for ~~LCO 3.8.4, "DC Sources — Operating," and~~ LCO 3.8.5, "DC Sources ~~— Shutdown~~."

APPLICABLE SAFETY ANALYSES

~~The initial conditions of Design Basis Accident (DBA) and transient analyses in UFSAR, Chapter 15 (Ref. 2), assume Engineered Safety Feature Systems are OPERABLE.~~ The DC electrical power subsystems provide normal and emergency DC electrical power for the Diesel Generators (DGs), emergency auxiliaries, and control and switching ~~during all MODES of operation~~.

when associated DC electrical power subsystems are required to be OPERABLE.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the ~~unit~~ as discussed in the Bases for ~~LCO 3.8.4 and~~ LCO 3.8.5.

facility

Since battery cell parameters support the operation of the DC electrical power subsystems, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Battery cell parameters must remain within acceptable limits to ensure availability of the required DC power to ~~shut down the reactor and~~ maintain ~~it~~ in a safe condition after ~~an Abnormal Operational Transient or~~ a postulated DBA. Electrolyte limits are conservatively established, allowing continued DC electrical system function even with Category A and B limits not met.

the facility

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(continued)

BASES (continued)

APPLICABILITY

The battery cell parameters are required solely for the support of the associated DC electrical power subsystem. Therefore, parameters for required battery cells are only required to be within limits when the associated DC electrical power subsystem is required to be OPERABLE. Refer to the Applicability discussions in Bases for ~~LCO 3.8.4 and~~ LCO 3.8.5.

ACTIONS

A.1, A.2, and A.3

With parameters of one or more cells in one or more batteries not within limits (i.e., Category A limits not met or Category B limits not met, or Category A and B limits not met) but within the Category C limits specified in Table 3.8.6-1, the battery is degraded but there is still sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of Category A or B limits not met, and continued operation is permitted for a limited period.

The pilot cell electrolyte level and float voltage are required to be verified to meet the Category C limits within 1 hour (Required Action A.1). This check provides a quick indication of the status of the remainder of the battery cells. One hour provides time to inspect the electrolyte level and to confirm the float voltage of the pilot cell. One hour is considered a reasonable amount of time to perform the required verification.

Verification that the Category C limits are met for required battery cells (Required Action A.2) provides assurance that during the time needed to restore the parameters to the Category A and B limits, the battery is still capable of performing its intended function. A period of 24 hours is allowed to complete the initial verification because specific gravity measurements must be obtained for each connected cell. Taking into consideration both the time required to perform the required verification and the assurance that the battery cell parameters are not severely

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(continued)

BASES (continued)

ACTIONS

A.1, A.2, and A.3 (continued)

degraded, this time is considered reasonable. The verification is repeated at 7 day intervals until the parameters are restored to Category A and B limits.

Continued operation is only permitted for 31 days before parameters for required battery cells must be restored to within Category A and B limits. Taking into consideration that, while battery capacity is degraded, sufficient capacity exists to perform the intended function and to allow time to fully restore the battery cell parameters to normal limits, this time is acceptable for operation prior to declaring the DC batteries inoperable.

B.1

When any battery parameter is outside the Category C limit for any connected (required) cell, sufficient capacity to supply the maximum expected load requirement is not ensured and the corresponding DC electrical power subsystem must be declared inoperable. Additionally, other potentially extreme conditions, such as any Required Action of Condition A and associated Completion Time not met or average electrolyte temperature of representative cells ≤ 65°F, also are cause for immediately declaring the associated DC electrical power subsystem inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

This SR verifies that Category A battery cell parameters are consistent with IEEE-450 (Ref. 3), which recommends regular battery inspections (at least one per month) including voltage, specific gravity, and electrolyte temperature of pilot cells.

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(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1 (continued)

The SR should only be performed when the battery is on a float charge to allow obtaining meaningful, consistent, trendable readings. If the battery is on equalize charge or has been on equalize charge anytime during the previous 72 hours when the SR is due, performance of the SR should be delayed until the battery has been off equalize charge for 72 hours, utilizing the allowance of SR 3.0.2. If it is expected that a battery will need to be on equalize charge when the SR is due and past the extension time allowed by SR 3.0.2, the SR should be performed early before the battery is placed on equalize charge. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.8.6.2

The periodic inspection of specific gravity and voltage is consistent with IEEE-450 (Ref. 3). The actual Surveillance Frequency is controlled under the Surveillance Frequency Control Program. In addition, within 24 hours of a battery discharge < 110 V for 125 V ~~and < 220 V for 250 V~~ or a battery overcharge > 150 V for 125 V ~~and > 300 V for 250 V~~, the battery must be demonstrated to meet Category B limits. Transients, such as motor starting transients, which may momentarily cause battery voltage to drop to ≤ 110 V for 125 V ~~and ≤ 220 V for 250 V~~, do not constitute a battery discharge provided the battery terminal voltage and float current return to pre-transient values. This inspection is also consistent with IEEE-450 (Ref. 3), which recommends special inspections following a severe discharge or overcharge, to ensure that no significant degradation of the battery occurs as a consequence of such discharge or overcharge.

SR 3.8.6.3

This Surveillance that verifies the average temperature of representative cells is within limits is consistent with a recommendation of IEEE-450 (Ref. 3) that states that the temperature of electrolytes in representative cells should be determined on a routine basis. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

Lower than normal temperatures act to inhibit or reduce battery capacity. This SR ensures that the operating temperatures remain within an acceptable operating range. This limit is based on manufacturer's recommendations.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

Table 3.8.6-1

This Table delineates the limits on electrolyte level, float voltage, and specific gravity for three different categories. The meaning of each category is discussed below.

Category A defines the normal parameter limit for each designated pilot cell in each battery. The cells selected as pilot cells are those whose temperature, voltage, and electrolyte specific gravity approximate the state of charge of the entire battery.

The Category A limits specified for electrolyte level are based on manufacturer's recommendations and are consistent with the guidance in IEEE-450 (Ref. 3), with the extra ¼ inch allowance above the high water level indication for operating margin to account for temperature and charge effects. In addition to this allowance, footnote (a) to Table 3.8.6-1 permits the electrolyte level to be temporarily above the specified maximum level during an equalizing charge, provided it is not overflowing. It is acknowledged that, following completion of an equalizing charge, electrolyte level may temporarily be above the specified limit, but not overflowing, for a short period of time. The recovery time for electrolyte level after the equalizing charge is considered part of the equalizing process. These limits ensure that the plates suffer no physical damage, and that adequate electron transfer capability is maintained in the event of transient conditions. IEEE-450 (Ref. 3) recommends that electrolyte level readings should be made only after the battery has been at float charge for at least 72 hours.

The Category A limit specified for float voltage is ≥ 2.13 V per cell. This value is based on the recommendation of IEEE-450 (Ref. 3), which states that prolonged operation of cells below 2.13 V can reduce the life expectancy of cells. The Category A limit specified for specific gravity for each pilot cell is ≥ 1.195 (0.015 below the manufacturer's fully charged nominal specific gravity or a battery charging current that had stabilized at a low value). This value is characteristic of a charged cell with adequate capacity. According to IEEE-450 (Ref 3), the specific gravity readings are based on a temperature of 77°F (25°C).

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

The specific gravity readings are corrected for actual electrolyte temperature and level. For each 3°F (1.67°C) above 77°F (25°C), 1 point (0.001) is added to the reading; 1 point is subtracted for each 3°F below 77°F. The specific gravity of the electrolyte in a cell increases with a loss of water due to electrolysis or evaporation. Level correction will be in accordance with manufacturer's recommendations.

Category B defines the normal parameter limits for each connected cell. The term "connected cell" excludes any battery cell that may be jumpered out.

The Category B limits specified for electrolyte level and float voltage are the same as those specified for Category A and have been discussed above. The Category B limit specified for specific gravity for each connected cell is ≥ 1.190 (0.020 below the manufacturer's fully charged, nominal specific gravity) with the average of all connected cells 1.200 (0.010 below the manufacturer's fully charged, nominal specific gravity). These values are based on manufacturer's recommendations. The minimum specific gravity value required for each cell ensures that the effects of a highly charged or newly installed cell do not mask overall degradation of the battery.

Category C defines the limits for each connected cell. These values, although reduced, provide assurance that sufficient capacity exists to perform the intended function and maintain a margin of safety. When any battery parameter is outside the Category C limits, the assurance of sufficient capacity described above no longer exists, and the battery must be declared inoperable.

The Category C limit specified for electrolyte level (above the top of the plates and not overflowing) ensures that the plates suffer no physical damage and maintain adequate electron transfer capability. The Category C Limit for voltage is based on IEEE-450 (Ref. 3), which states that a cell voltage of 2.07 V or below, under float conditions and not caused by elevated temperature of the cell, indicates internal cell problems and may require cell replacement.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

The Category C limit on average specific gravity ≥ 1.190, is based on manufacturer's recommendations (0.020 below the manufacturer's recommended fully charged, nominal specific gravity). In addition to that limit, it is required that the specific gravity for each connected cell must be no less than 0.020 below the average of all connected cells. This limit ensures that the effect of a highly charged or new cell does not mask overall degradation of the battery.

The footnotes to Table 3.8.6-1 that apply to specific gravity are applicable to Category A, B, and C specific gravity. Footnote (b) of Table 3.8.6-1 requires the above mentioned correction for electrolyte level and temperature, with the exception that level correction is not required when battery charging current, while on float charge, is < 2 amps for station service batteries. This current provides, in general, an indication of overall battery condition.

Because of specific gravity gradients that are produced during the recharging process, delays of several days may occur while waiting for the specific gravity to stabilize. A stabilized charger current is an acceptable alternative to specific gravity measurement for determining the state of charge of the designated pilot cell. This phenomenon is discussed in IEEE-450 (Ref. 3). Footnote (c) to Table 3.8.6-1 allows the float charge current to be used as an alternate to specific gravity for up to 7 days following a battery recharge. Within 7 days, each connected cell's specific gravity must be measured to confirm the state of charge. Following a minor battery recharge (such as equalizing charge that does not follow a deep discharge) specific gravity gradients are not significant, and confirming measurements may be made in less than 7 days.

REFERENCES

1. [Deleted]

2. UFSAR, Chapter 15.

3. IEEE Standard 450, 1987.

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B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.8 Distribution Systems ~~— Shutdown~~

BASES

BACKGROUND

INSERT 3.8.8-1

~~A description of the AC and DC Electrical Power Distribution System is provided in the Bases for LCO 3.8.7, "Distribution Systems — Operating."~~

APPLICABLE SAFETY ANALYSES

~~The initial conditions of Design Basis Accident and transient analyses in the UFSAR, Chapter 15 (Ref. 1), assume Engineered Safety Feature (ESF) Systems are OPERABLE.~~ The AC and DC Electrical Power Distribution Systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power ~~to ESF Systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded~~.

systems required to mitigate the consequences of a FHA.

The OPERABILITY of the AC and DC Electrical Power Distribution System is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum AC and DC electrical power sources and associated power distribution subsystems during ~~MODES 4 and 5, and during~~ movement of irradiated fuel assemblies in the secondary containment ensures that~~:~~

~~a.~~ ~~The facility can be maintained in the shutdown or refueling condition for extended periods;~~

~~b.~~ ~~Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and~~

adequate

a

~~c.~~ ~~Adequate~~ power is provided to mitigate ~~events postulated during shutdown, such as a~~ fuel handling accident.

The AC and DC electrical power distribution systems satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

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(continued)

INSERT B3.8.8-1
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The onsite Class 1E AC and DC electrical power distribution system is divided into redundant and independent AC and DC essential bus electrical power distribution subsystems.

The primary AC Distribution System consists of two 4.16 kV essential buses each having an offsite source of power as well as a dedicated onsite Diesel Generator (DG) source. Each essential bus is normally connected to the startup transformer (1X3). During a loss of the normal offsite power source to the essential buses, the alternate supply breaker from the standby transformer (1X4) attempts to close. If all offsite sources are unavailable, the onsite emergency DGs supply power to the essential buses.

The secondary distribution system includes 480 VAC emergency buses 1B3 and 1B4 and associated load centers, and transformers.

There are two independent 125 VDC electrical power distribution subsystems that support the necessary power for required safety functions.

The list of required distribution buses is presented in Table B 3.8.8-1.

BASES (continued)

LCO

Various combinations of subsystems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires energization of the portions of the Electrical Distribution System necessary to support OPERABILITY of Technical Specifications required systems, equipment, and components — both specifically addressed by their own LCO, and implicitly required by the definition of OPERABILITY. In addition, it is acceptable for required buses to be cross-tied ~~during shutdown conditions~~, permitting a single source to supply multiple redundant buses, provided the source is capable of maintaining proper frequency (if required) and voltage.

maintain the facility

Maintaining ~~these portions of~~ the Distribution System energized ensures the availability of sufficient power ~~to operate the plant~~ in a safe manner to mitigate the consequences of a postulated ~~events during shutdown (e.g.,~~ fuel handling accident~~s)~~.

APPLICABILITY

The AC and DC electrical power distribution subsystems required to be OPERABLE ~~in MODES 4 and 5 and~~ during movement of irradiated fuel assemblies in the secondary containment provide assurance that~~:~~

~~a. Systems that provide core cooling;~~

systems

~~b.~~ ~~Systems~~ needed to mitigate a fuel handling accident are available~~;~~

~~c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and~~

~~d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition~~.

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(continued)

BASES (continued)

APPLICABILITY (continued)

~~The AC and DC electrical power distribution subsystem requirements for MODES 1, 2, and 3 are covered in LCO 3.8.7.~~

ACTIONS

~~LCO 3.0.3 is not applicable while in MODE 4 or 5. However, since irradiated fuel assembly movement can occur in MODE 1, 2, or 3, the Actions have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of irradiated fuel assemblies would not be sufficient reason to require a reactor shutdown.~~

and

A.1, A.2~~.1, A.2.2, A.2.3, and A.2.4~~

Although redundant required features may require redundant Divisions of electrical power distribution subsystems to be OPERABLE, one OPERABLE distribution subsystem division may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS and~~ fuel movement. By allowing the option to declare required features associated with an inoperable distribution subsystem inoperable, appropriate restrictions are implemented in accordance with the affected distribution subsystem LCO's Required Actions. In many instances this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made, (i.e., to suspend ~~CORE ALTERATIONS and~~ movement of irradiated fuel assemblies in the secondary containment).

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(continued)

and

BASES (continued)

ACTIONS

A.1, ~~A.2.1, A.2.2, A.2.3, and A.2.4~~ A.2 (continued)

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. ~~It is further required to immediately initiate action to restore the required AC and DC electrical power distribution subsystems and to continue this action until restoration is accomplished in order to provide the necessary power to the plant safety systems.~~

~~Not withstanding performance of the above conservative Required Actions, a required Residual Heat Removal Shutdown Cooling (RHR SDC) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.3 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the RHR SDC ACTIONS would not be entered. Therefore, Required Action A.2.4 is provided to direct declaring RHR SDC inoperable, which results in taking the appropriate RHR SDC ACTIONS.~~

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. ~~The restoration of the required distribution subsystems should be completed as quickly as possible in order to minimize the time the plant safety systems may be without power.~~

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(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the AC and DC electrical power distribution subsystems are functioning properly, with the correct circuit breaker alignment. The correct circuit breaker alignment ensures power is available to each required bus. The verification of energization of the buses ensures that the required power is readily available for motive as well as control functions for critical system loads connected to these buses. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Frequency takes into account the redundant capability of the electrical power distribution subsystems, as well as other indications available in the control room that alert the operator to subsystem malfunctions.

REFERENCES

1. UFSAR, Chapter 15.

INSERT 3.8.8-2

INSERT B3.8.8-2 Page 1 of 1

Table B 3.8.8-1 (page 1 of 1)
AC and DC Electrical Power Distribution Systems

TYPE	VOLTAGE	DIVISION 1[a]	DIVISION 2[a]
AC safety buses	4160 V	Essential Bus 1A3	Essential Bus 1A4
	480 V	Load Centers 1B3, 1B9	Load Centers 1B4, 1B20
	480 V	Motor Control Centers 1B32, 1B34	Motor Control Centers 1B42, 1B44
125 VDC buses	125 V	Distribution Panels 1D10, 1D11, 1D13	Distribution Panels 1D20, 1D21, 1D23

[a] Each division of the AC and DC electrical power distribution systems is a subsystem.