DUKE ENERGY®

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10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Renewed Facility Operating License Nos. DPR-71 and DPR-62
Docket Nos. 50-325 and 50-324
License Amendment Request for Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-423, Revision 1, "Technical Specifications End States, NEDC-32988-A"

Ladies and Gentlemen:

In accordance with the provisions of Title 10 of the Code of Federal Regulations (10 CFR) Section 50.90, Duke Energy Progress, LLC (Duke Energy), is submitting a request for an amendment to the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2 Technical Specifications (TS) to incorporate the NRC-approved TSTF-423, Revision 1.

The proposed amendment would modify TS to risk-inform requirements regarding selected Required Action end states by incorporating the Boiling Water Reactor (BWR) Owners' Group (BWROG) approved Topical Report NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required Action End States for BWR Plants." Additionally, the proposed amendment would modify the TS Required Actions with a Note prohibiting the use of limiting condition for operation (LCO) 3.0.4.a when entering the preferred end state (i.e., Mode 3) on reactor startup.

Enclosure 1 provides a description and assessment of the proposed change, the requested confirmation of applicability, and plant-specific verifications. Enclosures 2 and 3 provide marked-up pages of existing Unit 1 and Unit 2 TS, respectively, to show the proposed changes. Enclosure 4 and 5 provide revised (i.e., typed) TS pages for Unit 1 and 2, respectively. Enclosure 6 provides marked-up pages of existing Unit 1 TS Bases, for information only. Enclosure 7 summarizes the regulatory commitments made in this submittal.

Duke Energy requests approval of the proposed license amendment by September 28, 2017, with the amendment being implemented within 120 days.

In accordance with 10 CFR 50.91, Duke Energy is providing a copy of the proposed license amendment to the designated representative for the State of North Carolina.

Please refer any questions regarding this submittal to Mr. Lee Grzeck, Manager - Regulatory Affairs, at (910) 457-2487.

A001
NRR

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on September 28, 2016.

Sincerely,

William R. Gideon

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Enclosures:

1. Description and Assessment of the Proposed Change
2. Marked-up Technical Specifications Pages - Unit 1
3. Marked-up Technical Specifications Pages - Unit 2
4. Revised Technical Specifications Pages - Unit 1
5. Revised Technical Specifications Pages - Unit 2
6. Marked-up Technical Specifications Bases Pages - Unit 1 (For Information Only)
7. Regulatory Commitments

cc (with enclosures):

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Description and Assessment of the Proposed Change

Subject: License Amendment Request for Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-423, Revision 1, "Technical Specifications End States, NEDC-32988-A"

1.0 Description

The proposed amendment will modify Technical Specifications (TS) to risk-inform requirements regarding selected Required Action end states. Additionally, it will modify the TS Required Actions with a Note prohibiting the use of limiting condition for operation (LCO) 3.0.4.a when entering the preferred end state (Mode 3) on reactor startup. The changes are consistent with Nuclear Regulatory Commission (NRC)-approved Technical Specification Task Force (TSTF) traveler TSTF-423, Revision 1, "Technical Specifications End States, NEDC-32988-A," dated December 22, 2009 (i.e., ADAMS Accession Number ML093570241) (Reference 1). The *Federal Register* notice published on February 18, 2011 (76 FR 34) (Reference 2) announced the availability of this TS improvement as part of the consolidated line item improvement process (CLIIP).

2.0 Assessment

2.1 Applicability of Topical Report NEDC-32988-A, TSTF-423, and Model Safety Evaluation

Duke Energy Progress, LLC, (Duke Energy) has reviewed Boiling Water Reactor (BWR) Owners' Group (BWROG) topical report (TR) NEDC-32988-A (Reference 3), TSTF-423, Revision 1 (Reference 1), and the NRC staff's model safety evaluation (SE) (Reference 4) as part of the CLIIP. Duke Energy has concluded that the information in TR NEDC-32988-A, TSTF-423, and the NRC staff's model SE are applicable to the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2, and justify this license amendment request (LAR) for the incorporation of the changes to the BSEP TSs.

2.2 Optional Changes and Variations

Duke Energy is proposing variations or deviations from TR NEDC-32988-A, the TS changes described in TSTF-423, Revision 1, or the NRC staff's model SE referenced in the *Federal Register* on February 18, 2011 (76 FR 34) as part of the CLIIP Notice of Availability. The proposed variations/deviations and their effects are discussed in the following table.

No.	BSEP TS	Title	Variation/Deviation	Comments
1.	3.3.8.2	Reactor Protection System (RPS) Electrical Power Monitoring	No changes to BSEP TS 3.3.8.2 are proposed.	The existing BSEP TS 3.3.8.2 does not include a Required Action to be in Mode 4. Therefore, no change is necessary.

No.	BSEP TS	Title	Variation/Deviation	Comments
2.	3.4.3	Safety/Relief Valves (SRVs)	No changes to BSEP TS 3.4.3 are proposed.	The Standard TS, Condition A is not applicable to BSEP. BSEP TS 3.4.3, Condition A, corresponds to the proposed Condition C in TSTF-423; which includes the Mode 4 requirement. Therefore, no changes are proposed to BSEP TS 3.4.3.
3.	3.5.1	ECCS - Operating	Condition C of BSEP TS 3.5.1 is proposed to be revised per TSTF-423; however, it applies when Conditions A or B are not met. Conditions in BSEP TS 3.5.1 are numbered differently from the Standard TS Conditions.	Condition A of the Standard TS and Condition A of the BSEP TS 3.5.1 are equivalent. BSEP TS 3.5.1 includes Condition B for one Low Pressure Coolant Injection (LPCI) pump and one Core Spray (CS) subsystem inoperable concurrently. The justification provided in the topical report and model Safety Evaluation for this change is also applicable to Condition B of the BSEP TS 3.5.1.
4.	N/A	Low-Low Set (LLS) Valves	No changes corresponding to Standard TS 3.6.1.6 are proposed.	The BSEP TSs do not include a specification for LLS Valves.
5.	3.6.1.5	Reactor Building-to-Suppression Chamber Vacuum Breakers	BSEP TS 3.6.1.5 corresponds to Standard TS 3.6.1.7. New Condition F, applicable to Condition E is added. BSEP TS 3.6.1.5 Conditions for which Mode 4 shutdown remains applicable are included in renumbered Condition G.	BSEP TS 3.6.1.5 includes Conditions C and D, which address the Nitrogen Backup System. Similar Conditions are not included in the Standard TS 3.6.1.7. The proposed BSEP change is equivalent to the change to Standard TS 3.6.1.7 in TSTF-423, in that it applies to one line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening. BSEP TS 3.6.1.5 Conditions for which Mode 4 shutdown remains applicable are included in renumbered

No.	BSEP TS	Title	Variation/Deviation	Comments
				Condition G. This is equivalent to the intent of the change to renumbered Condition F TSTF-423 for Standard TS 3.6.1.7.
6.	3.6.1.6	Suppression Chamber-to-Drywell Vacuum Breakers	BSEP TS 3.6.1.6 corresponds to Standard TS 3.6.1.8.	The changes proposed to BSEP TS 3.6.1.6 are equivalent to the change to the Standard TS 3.6.1.8 in TSTF-423. Only the TS number differs.
7.	N/A	Main Steam Isolation Valve (MSIV) Leakage Control System (LCS)	No changes corresponding to Standard TS 3.6.1.9 are proposed.	The BSEP TSs do not include a specification for an MSIV LCS.
8.	N/A	Residual Heat Removal (RHR) Suppression Pool Spray	No changes corresponding to Standard TS 3.6.2.4 are proposed.	The BSEP TSs do not include a specification for an RHR Suppression Pool Spray.
9.	3.6.4.3	Standby Gas Treatment (SGT) System	The changes associated with Standard TS 3.6.4.3, Required Action D.1 are reflected in the Required Actions for BSEP TS 3.6.4.3 Condition B.	Standard TS 3.6.4.3 Condition A applies to inoperability of one SGT subsystem. Standard TS 3.6.4.3 Condition D applies to inoperability of two SGT subsystems. The changes to the Standard TS 3.6.4.3 in TSTF-423 allows the unit to remain in Mode 3 under these conditions. BSEP TS 3.6.4.3 addresses inoperability of one SGT subsystem in Condition A. BSEP TS 3.6.4.3 Condition B provides the shutdown requirements for failure to meet the Completion Time of Condition A and for inoperability of two SGT subsystems. As such, only BSEP TS 3.6.4.3 Condition B is revised to provide equivalent changes to those in TSTF-423 for Standard TS 3.6.4.3.

No.	BSEP TS	Title	Variation/Deviation	Comments
10.	3.7.1	Residual Heat Removal Service Water (RHRSW) System	The addition of the new Condition D in Standard TS 3.7.1 is proposed as a new Condition C in BSEP TS 3.7.1. Conditions in BSEP TS 3.7.1 are numbered differently from the Standard TS 3.7.1 Conditions.	Both the BSEP and the Standard TS 3.7.1 Condition A addresses inoperability of one RHRSW pump. Standard TS 3.7.1 Condition B addresses inoperability of one RHRSW pump in each subsystem. Standard TS 3.7.1 Condition C addresses inoperability of a RHRSW for reasons other than Condition A. BSEP TS 3.7.1 does not have a Condition equivalent to Standard TS 3.7.1 Condition B. Rather, BSEP TS 3.7.1 Condition B addresses inoperability of a RHRSW for reasons other than Condition A (i.e., which would include inoperability of one RHRSW pump in each subsystem). As such, adding the new BSEP TS 3.7.1 Condition C provides an equivalent change to that in TSTF 423 for Standard TS 3.7.1.
11.	3.7.2	Service Water (SW) System and Ultimate Heat Sink (UHS)	No changes to BSEP TS 3.7.2 are proposed.	The justification provided in the topical report and model Safety Evaluation for changes to Standard TS 3.7.2 are based on a typical two subsystem configuration. The BSEP SW system consists of four site nuclear service water pumps and three conventional service water pumps per plant. Based on the significant differences, no changes to BSEP TS 3.7.2 are proposed.

No.	BSEP TS	Title	Variation/Deviation	Comments
12.	3.7.3	Control Room Emergency Ventilation (CREV) System	BSEP TS 3.7.3 corresponds to Standard TS 3.7.4. The changes associated with Standard TS 3.7.4, Required Action E.1 and E.2 are reflected in the Required Actions for BSEP TS 3.7.3 Condition C.	Standard TS 3.7.4 Condition A applies to inoperability of one Main Control Room Environmental Control (MCREC) subsystem. Standard TS 3.7.4 Condition E applies to inoperability of two MCREC subsystems. The changes to the Standard TS 3.7.4 in TSTF-423 allow the unit to remain in Mode 3 under these conditions. BSEP TS 3.7.3 addresses inoperability of one CREV subsystem (i.e., plant specific nomenclature corresponding to MCREC) in Condition A. BSEP TS 3.7.3 Condition C provides the shutdown requirements for failure to meet the Completion Time of Condition A, Condition B, and for inoperability of two CREV subsystems. As such, only BSEP TS 3.7.3 Condition C is revised to provide equivalent changes to those in TSTF-423 for Standard TS 3.7.4.
13.	3.7.4	Control Room Air Conditioning (AC) System	BSEP TS 3.7.4 corresponds to Standard TS 3.7.5. BSEP TS 3.7.4 is revised to allow the units to remain in Mode 3 when three subsystems of the Control Room AC system are inoperable. Conditions in BSEP TS 3.7.4 are numbered differently from the Standard TS Conditions.	Standard TS 3.7.5 applies to a typical Control Room AC system which consists of two independent, redundant subsystems. The BSEP Control Room AC system consists of three 50 percent capacity subsystems and BSEP TS 3.7.4 reflects this design. The justification provided in the topical report and model Safety Evaluation for changes to Standard TS 3.7.5 allows a unit to remain in Mode 3 when both subsystems of the Control Room AC system are inoperable. The proposed changes to BSEP TS 3.7.4 remain consistent with

No.	BSEP TS	Title	Variation/Deviation	Comments
				TSTF-423 by allowing the units to remain in Mode 3 under the loss of function condition.
14.	3.7.5	Main Condenser Offgas	BSEP TS 3.7.5 corresponds to Standard TS 3.7.6.	The only variation is associated with the TS number. The changes to the Standard TS 3.7.6 in TSTF-423 were incorporated, as presented, in the proposed change to BSEP TS 3.7.5.
15.	3.8.1	AC Sources - Operating	Condition H of BSEP TS 3.8.1 is proposed to be revised per TSTF-423. As a result, the TSTF-423 changes will be applied to BSEP TS 3.8.1, Conditions A and B, which are plant specific and not included in Standard TS 3.8.1. Conditions in BSEP TS 3.8.1 are numbered differently from the Standard TS Conditions.	Standard TS 3.8.1 applies to typical AC source design. BSEP TS 3.8.1 reflects the unique BSEP AC source design and, as a result, requires two Unit 1 and two Unit 2 qualified circuits and four separate and independent diesel generators to be operable when in Modes 1, 2, or 3. To accommodate maintenance activities, BSEP TS 3.8.1, Conditions A and B, are specific to AC sources primarily associated with the opposite unit (e.g., Conditions A and B of BSEP Unit 1 TS 3.8.1 are applicable to offsite circuits and diesel generators primarily associated with Unit 2). The proposed changes to BSEP TS 3.8.1 remain consistent with TSTF-423 in that an affected unit will be allowed to remain in Mode 3 given similar level degradation of AC sources. The justification provided in the topical report and model Safety Evaluation for changes to Standard TS 3.8.1 is applicable to BSEP.

No.	BSEP TS	Title	Variation/Deviation	Comments
16.	3.8.4	DC Sources - Operating	The changes associated with Standard TS 3.8.4, Required Action D.1 and D.2 are reflected in the Required Actions for BSEP TS 3.8.4 Condition B. The existing BSEP TS 3.8.4 Condition B addresses the failure to complete Condition A within the allowed Completion Time and inoperability of more than one DC electrical power subsystem. This Condition has been revised to address only the failure to complete Condition A within the allowed Completion Time. A new Condition C addresses inoperability of more than one DC electrical power subsystem. The changes associated with Standard TS 3.8.4 are not applicable to the new BSEP TS 3.8.4 Condition C.	Standard TS 3.8.4 includes Conditions associated with battery chargers, discrete batteries, and DC electrical power subsystems. BSEP TS 3.8.4 is applicable only to the DC electrical power subsystem level. Standard TS 3.8.4 does not address inoperability of multiple DC electrical power subsystems but BSEP TS 3.8.4 does. Also, the Standard TS 3.8.4 reflects a typical configuration consisting of two DC electrical power subsystems. The BSEP configuration requires both the Unit 1 and Unit 2 DC electrical power subsystems to be operable with a unit in Modes 1, 2, or 3. Consistent with the TSTF-423 changes to Standard TS 3.8.4, the allowance to remain in Mode 3 with one inoperable DC electrical power subsystem is applied to the revised BSEP TS 3.8.4 Condition B. Under both the Standard TS 3.8.4 configuration and the BSEP configuration, loss of any DC electrical power subsystem does not prevent the minimum safety function from being performed. Therefore, the justification provided in the topical report and model Safety Evaluation for changes to Standard TS 3.8.4 is applicable to BSEP.
17.	N/A	Inverters - Operating	No changes corresponding to Standard TS 3.8.7 are proposed.	The BSEP TSs do not include a specification for Inverters.

No.	BSEP TS	Title	Variation/Deviation	Comments
18.	3.8.7	Distribution System - Operating	BSEP TS 3.8.7 corresponds to Standard TS 3.8.9. Condition D of BSEP TS 3.8.7 is proposed to be revised per TSTF-423. As a result, the TSTF-423 changes will be applied to BSEP TS 3.8.7, Condition A which is plant specific and not included in Standard TS 3.8.9. Conditions in BSEP TS 3.8.7 are numbered differently from the Standard TS 3.8.9 Conditions.	Standard TS 3.8.9 applies to typical Distribution system design. BSEP TS 3.8.7 reflects the unique BSEP Distribution system design and, as a result, requires emergency bus 1 (i.e., E1), E2, E3, and E4 load groups to be operable when the unit is in Modes 1, 2, or 3. Load groups E1 and E2 primarily serve Unit 1 loads and load groups E3 and E4 load groups primarily serve Unit 2 loads. To accommodate maintenance activities, BSEP TS 3.8.7, Condition A, is specific to load groups primarily associated with the opposite unit (e.g., Condition A of BSEP Unit 1 TS 3.8.7 is applicable to Load Groups 3 and 4, primarily associated with Unit 2). The proposed changes to BSEP TS 3.8.7 remain consistent with TSTF-423 in that an affected unit will be allowed to remain in Mode 3 given similar level degradation. The justification provided in the topical report and model Safety Evaluation for changes to Standard TS 3.8.9 is applicable to BSEP.

3.0 Regulatory Analysis

3.1 No Significant Hazards Consideration Analysis

Duke Energy has evaluated the proposed changes to the Technical Specifications (TS) using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration.

Description of Amendment Request: A change is proposed to the TS of the Brunswick Steam Electric Plant (BSEP), Units 1 and 2, consistent with TSTF-423, Revision 1, to allow, for some systems, entry into hot shutdown rather than cold shutdown to repair equipment, if risk is assessed and managed consistent with the program in place for complying with the

requirements of 10 CFR 50.65(a)(4). Changes proposed in TSTF-423 will be made to the BSEP TSs for selected Required Action end states.

Basis for no significant hazards consideration determination: As required by 10 CFR 50.91(a), Duke Energy analysis of the issue of no significant hazards consideration is presented below:

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

   Response: No

   The proposed change allows a change to certain required end states when the TS Completion Times for remaining in power operation will be exceeded. Most of the requested TS changes are to permit an end state of hot shutdown (Mode 3) rather than an end state of cold shutdown (Mode 4) contained in the current TS. The request was limited to: (1) those end states where entry into the shutdown mode is for a short interval, (2) entry is initiated by inoperability of a single train of equipment or a restriction on a plant operational parameter, unless otherwise stated in the applicable TS, and (3) the primary purpose is to correct the initiating condition and return to power operation as soon as is practical. Risk insights from both the qualitative and quantitative risk assessments were used in specific TS assessments. Such assessments are documented in Section 6 of topical report NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required Action End States for BWR Plants." They provide an integrated discussion of deterministic and probabilistic issues, focusing on specific TSs, which are used to support the proposed TS end state and associated restrictions. The NRC staff finds that the risk insights support the conclusions of the specific TS assessments. Therefore, the probability of an accident previously evaluated is not significantly increased, if at all. The consequences of an accident after adopting TSTF-423 are no different than the consequences of an accident prior to adopting TSTF-423. Therefore, the consequences of an accident previously evaluated are not significantly affected by this change. The addition of a requirement to assess and manage the risk introduced by this change will further minimize possible concerns.

   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 change does not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed). If risk is assessed and managed, allowing a change to certain required end states when the TS Completion Times for remaining in power operation are exceeded (i.e., entry into hot shutdown rather than cold shutdown to repair equipment) will not introduce new failure modes or effects and will not, in the absence of other unrelated failures, lead to an accident whose consequences exceed the consequences of accidents previously evaluated. The addition of a requirement to assess and manage the risk introduced by this change and the commitment by the

licensee to adhere to the guidance in TSTF-IG-05-02, "Implementation Guidance for TSTF-423, Revision 1, 'Technical Specifications End States, NEDC-32988-A,'" will further minimize possible concerns.

Thus, based on the above, this change does not create the possibility of a new or different kind of accident from an accident previously evaluated.

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

   Response: No

   The proposed change allows, for some systems, entry into hot shutdown rather than cold shutdown to repair equipment, if risk is assessed and managed. The BWROG's risk assessment approach is comprehensive and follows NRC staff guidance as documented in Regulatory Guides (RG) 1.174 and 1.177. In addition, the analyses show that the criteria of the three-tiered approach for allowing TS changes are met. The risk impact of the proposed TS changes was assessed following the three-tiered approach recommended in RG 1.177. A risk assessment was performed to justify the proposed TS changes. The net change to the margin of safety is insignificant.

   Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based upon the reasoning presented above, Duke Energy concludes that the requested change involves no significant hazards consideration, as set forth in 10 CFR 50.92(c), "Issuance of Amendment."

3.2 Verifications, Commitments, and Additional Information Needed

Duke Energy commits to the regulatory commitments in Enclosure 7. In addition, Duke Energy has proposed TS Bases consistent with TSTF-423, Revision 1, which provide guidance and details on how to implement the new requirements. Implementation of TSTF-423 requires that risk be managed and assessed, and the licensee's configuration risk management program is adequate to satisfy this requirement. The risk assessment need not be quantified, but may be a qualitative assessment of the vulnerability of systems and components when one or more systems are not able to perform their associated function. Finally, Duke Energy has a Bases Control Program consistent with Section 5.5 of the Standard Technical Specifications (STS).

4.0 Environmental Evaluation

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR Part 20, and would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

5.0 References

1. TSTF-423, Revision 1, "Technical Specifications End States, NEDC-32988-A," dated December 22, 2009 (ADAMS Accession No. ML093570241).
2. *Federal Register*, Vol. 76, No. 34, p.9614, "Notice of Availability of the Proposed Models for Plant-Specific Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-423, Revision 1, 'Technical Specifications End States, NEDC-32988-A,' for Boiling Water Reactor Plants Using the Consolidated Line Item Improvement Process," (ADAMS Accession No. ML102730585).
3. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required Action End States for BWR Plants," December 2002 (ADAMS Package Accession No. ML030170090).
4. NRC Model Safety Evaluation of TSTF-423, Revision 1, dated February 18, 2011 (ADAMS Accession No. ML102730688).

Marked-up Technical Specifications Pages - Unit 1

Enclosure 2 Contains the following Marked-up Unit 1 TS Pages	
3.5-2	3.7-2
3.5-3	3.7-3
3.5-4	3.7-12
3.5-12	3.7-15
3.6-16	3.7-16
3.6-18	3.7-18
3.6-24	3.8-6
3.6-28	3.8-24
3.6-33	3.8-36

ACTION

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

		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. HPCI System inoperable.	D.1	Verify by administrative means RCIC System is OPERABLE.	Immediately
	AND		
	D.2	Restore HPCI System to OPERABLE status.	14 days
E. HPCI System inoperable. AND One low pressure ECCS injection/spray subsystem is inoperable.	E.1	Restore HPCI System to OPERABLE status.	72 hours
	OR		
	E.2	Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours
F. One required ADS valve inoperable.	F.1	Restore required ADS valve to OPERABLE status.	14 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. One required ADS valve inoperable. AND One low pressure ECCS injection/spray subsystem inoperable.	G.1 Restore required ADS valve to OPERABLE status. OR G.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours 72 hours
H. One required ADS valve inoperable. AND HPCI System inoperable.	H.1 Restore required ADS valve to OPERABLE status. OR H.2 Restore HPCI System to OPERABLE status.	72 hours 72 hours
~~I. Required Action and associated Completion Time of Condition D, E, F, G, or H not met.~~ ~~OR~~ Two or more required ADS valves inoperable.	~~I.1~~ Be in MODE 3. J.1 AND ~~I.2~~ Reduce reactor steam dome pressure to ≤ 150 psig. J.2	12 hours 36 hours

J.

(continued)

I. Required Action and associated Completion Time of Condition D, E, F, G, or H not met.	I.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~J.~~ K. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A or B. OR HPCI System and two or more required ADS valves inoperable.	~~J.1~~ K.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) 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~~

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two reactor building-to-suppression chamber vacuum breakers inoperable due to inoperable nitrogen backup subsystems.	D.1 Restore one vacuum breaker to OPERABLE status.	7 days
E. One line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening for reasons other than Condition C.	E.1 Restore the vacuum breaker(s) to OPERABLE status.	72 hours
~~F.~~ G. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening for reasons other than Condition D.	~~F.1~~ G.1 Restore all vacuum breakers in one line to OPERABLE status.	2 hours
~~G.~~ H. Required Action and associated Completion Time not met.	~~G.1~~ H.1 Be in MODE 3. AND ~~G.2~~ H.2 Be in MODE 4.	12 hours 36 hours

of Condition A, B, C, D, F, or G

F. Required Action and associated Completion Time of Condition E not met.	F.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.6 Suppression Chamber-to-Drywell Vacuum Breakers

LCO 3.6.1.6 Eight suppression chamber-to-drywell vacuum breakers shall be OPERABLE for opening.

AND

Ten 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. C.	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. C.1	4 hours
~~C.~~ Required Action and associated Completion Time not met. D.	~~C.1~~ Be in MODE 3. D.1 AND ~~C.2~~ Be in MODE 4. D.2	12 hours 36 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours

of Condition C

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 suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days
~~B.~~ C. Two RHR suppression pool cooling subsystems inoperable.	~~B.1~~ C.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours
~~C.~~ D. Required Action and associated Completion Time of Condition C not met.	~~C.1~~ D.1 Be in MODE 3. AND ~~C.2~~ D.2 Be in MODE 4.	12 hours 36 hours

B. Required Action and associated Completion Time of Condition A not met.	B.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

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,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1 Restore secondary containment to OPERABLE status.	8 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~~
C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment, or during OPDRVs.	C.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in the secondary containment. AND	Immediately (continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable in MODE 1, 2 or 3.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR Two SGT subsystems inoperable in MODE 1, 2, or 3.	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
B. One RHRSW subsystem inoperable for reasons other than Condition A.	B.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
~~C.~~ D. Both RHRSW subsystems inoperable.	~~C.1~~ D.1 ----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.4.7 for RHR shutdown cooling made inoperable by RHRSW System. ---------- Restore one RHRSW subsystem to OPERABLE status.	8 hours

(continued)

C. Required Action and associated Completion Time of Condition A or B not met.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

ACTIONS (continued)

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

of Condition D

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify each RHRSW 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.	31 days

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

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. OR Two CREV subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	C.1 Be in MODE 3. ~~AND~~ ~~C.2 Be in MODE 4.~~	12 hours ~~36 hours~~
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, or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D.1 Place OPERABLE CREV subsystem in radiation/smoke protection mode. OR D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND D.2.2 Suspend CORE ALTERATIONS. AND D.2.3 Initiate action to suspend OPDRVs.	 Immediately Immediately Immediately Immediately

(continued)

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Three control room AC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of irradiated fuel assemblies in the secondary containment,

During CORE ALTERATIONS,

During operations with a potential for draining the reactor vessel (OPDRVs).

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One control room AC subsystem inoperable.	A.1	Restore control room AC subsystem to OPERABLE status.	30 days
B. Two control room AC subsystems inoperable.	B.1	Restore one inoperable control room AC 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
D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------		
	D.1	Place OPERABLE control room AC subsystem(s) in operation.	Immediately
	OR		
	D.2.1	Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND		
	D.2.2	Suspend CORE ALTERATIONS.	Immediately
	AND		
	D.2.3	Initiate action to suspend OPDRVs.	Immediately
E. Three control room AC subsystems inoperable in MODE 1, 2, or 3.	E.1	~~Enter LCO 3.0.3.~~	~~Immediately~~

(continued)

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

Be in MODE 3.

12 hours

3.7 PLANT SYSTEMS

3.7.5 Main Condenser Offgas

LCO 3.7.5 The gross gamma activity rate of the noble gases measured at the main condenser air ejector shall be ≤ 243,600 μCi/second after decay of 30 minutes.

APPLICABILITY: MODE 1,

MODES 2 and 3 with any main steam line not isolated and steam jet air ejector (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~~

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One offsite circuit inoperable for reasons other than Condition B. AND One DG inoperable for reasons other than Condition B.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems—Operating," when Condition F is entered with no AC power source to any 4.16 kV emergency bus. ---------- F.1 Restore offsite circuit to OPERABLE status. OR F.2 Restore DG to OPERABLE status.	 12 hours 12 hours
G. Two or more DGs inoperable.	G.1 Restore all but one DG to OPERABLE status.	2 hours
H. Required Action and associated Completion Time of Condition A, B, C, D, E, F or G not met.	H.1 Be in MODE 3. ~~AND~~ ~~H.2 Be in MODE 4.~~	12 hours ~~36 hours~~
I. One or more offsite circuits and two or more DGs inoperable. OR Two or more offsite circuits and one DG inoperable for reasons other than Condition B.	I.1 Enter LCO 3.0.3.	Immediately

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
	~~AND~~	
~~OR~~	~~B.2 Be in MODE 4.~~	~~36 hours~~
~~Two or more DC electrical power subsystems inoperable.~~		

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 130 V on float charge.	7 days
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is ≤ 23.0 μohms for inter-cell connections and ≤ 82.8 μohms for inter-rack connections.	92 days
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that degrades performance.	18 months

(continued)

C.	Two or more DC electrical power subsystems inoperable.	C.1 Be in MODE 3.	12 hours
		AND	
		C.2 Be in MODE 4.	36 hours

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more DC electrical power distribution subsystems inoperable for reasons other than Condition C.	D.1 Restore DC electrical power distribution subsystems to OPERABLE status.	7 days AND 176 hours from discovery of failure to meet LCO
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. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	F.1 Enter LCO 3.0.3.	Immediately

Marked-up Technical Specifications Pages - Unit 2

Enclosure 3 Contains the following Marked-up Unit 2 TS Pages	
3.5-2	3.7-2
3.5-3	3.7-3
3.5-4	3.7-12
3.5-12	3.7-15
3.6-16	3.7-16
3.6-18	3.7-18
3.6-24	3.8-6
3.6-28	3.8-24
3.6-33	3.8-36

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIO

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. HPCI System inoperable.	D.1 Verify by administrative means RCIC System is OPERABLE.	Immediately
	AND	
	D.2 Restore HPCI System to OPERABLE status.	14 days
E. HPCI System inoperable. AND One low pressure ECCS injection/spray subsystem is inoperable.	E.1 Restore HPCI System to OPERABLE status.	72 hours
	OR	
	E.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours
F. One required ADS valve inoperable.	F.1 Restore required ADS valve to OPERABLE status.	14 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. One required ADS valve inoperable. AND One low pressure ECCS injection/spray subsystem inoperable.	G.1 Restore required ADS valve to OPERABLE status. OR G.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours 72 hours
H. One required ADS valve inoperable. AND HPCI System inoperable.	H.1 Restore required ADS valve to OPERABLE status. OR H.2 Restore HPCI System to OPERABLE status.	72 hours 72 hours
~~I. Required Action and associated Completion Time of Condition D, E, F, G, or H not met.~~ ~~OR~~ Two or more required ADS valves inoperable.	~~I.1~~ Be in MODE 3. J.1 AND ~~I.2~~ Reduce reactor steam dome pressure to ≤ 150 psig. J.2	12 hours 36 hours

(continued)

J.

I. Required Action and associated Completion Time of Condition D, E, F, G, or H not met.	I.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~J.~~ K. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A or B. OR HPCI System and two or more required ADS valves inoperable.	~~J.1~~ K.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) 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~~

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two reactor building-to-suppression chamber vacuum breakers inoperable due to inoperable nitrogen backup subsystems.	D.1 Restore one vacuum breaker to OPERABLE status.	7 days
E. One line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening for reasons other than Condition C.	E.1 Restore the vacuum breaker(s) to OPERABLE status.	72 hours
~~F.~~ G. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening for reasons other than Condition D.	~~F.1~~ G.1 Restore all vacuum breakers in one line to OPERABLE status.	2 hours
~~G.~~ H. Required Action and associated Completion Time of Condition A, B, C, D, F, or G not met.	~~G.1~~ H.1 Be in MODE 3. ~~AND~~ ~~G.2~~ H.2 Be in MODE 4.	12 hours 36 hours

F. Required Action and associated Completion Time of Condition E not met.	F.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.6 Suppression Chamber-to-Drywell Vacuum Breakers

LCO 3.6.1.6 Eight suppression chamber-to-drywell vacuum breakers shall be OPERABLE for opening.

AND

Ten 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.~~ C. One suppression chamber-to-drywell vacuum breaker not closed.	~~B.1~~ C.1 Close the open vacuum breaker.	4 hours
~~C.~~ D. Required Action and associated Completion Time of Condition C not met.	~~C.1~~ D.1 Be in MODE 3. AND ~~C.2~~ D.2 Be in MODE 4.	12 hours 36 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours

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 suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days
~~B.~~ C. Two RHR suppression pool cooling subsystems inoperable.	~~B.1~~ C.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours
~~C.~~ D. Required Action and associated Completion Time not met.	~~C.1~~ D.1 Be in MODE 3. AND ~~C.2~~ D.2 Be in MODE 4.	12 hours 36 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

of Condition C

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,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1 Restore secondary containment to OPERABLE status.	8 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
	~~AND~~	
	~~B.2 Be in MODE 4.~~	~~36 hours~~
C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment, or during OPDRVs.	C.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
		(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable in MODE 1, 2 or 3.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR Two SGT subsystems inoperable in MODE 1, 2, or 3.	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
B. One RHRSW subsystem inoperable for reasons other than Condition A.	B.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
~~C.~~ D. Both RHRSW subsystems inoperable.	~~C.1~~ D.1 ----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.4.7 for RHR shutdown cooling made inoperable by RHRSW System. ---------- Restore one RHRSW subsystem to OPERABLE status.	8 hours

(continued)

C. Required Action and associated Completion Time of Condition A or B not met.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

ACTIONS (continued)

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

of Condition D

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify each RHRSW 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.	31 days

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

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. OR Two CREV subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	C.1 Be in MODE 3. ~~AND~~ ~~C.2 Be in MODE 4.~~	12 hours ~~36 hours~~
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, or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D.1 Place OPERABLE CREV subsystem in radiation/smoke protection mode. OR D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND D.2.2 Suspend CORE ALTERATIONS. AND D.2.3 Initiate action to suspend OPDRVs.	 Immediately Immediately Immediately Immediately

(continued)

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Three control room AC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRVs).

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One control room AC subsystem inoperable.	A.1	Restore control room AC subsystem to OPERABLE status.	30 days
B. Two control room AC subsystems inoperable.	B.1	Restore one inoperable control room AC 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
D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D.1 Place OPERABLE control room AC subsystem(s) in operation. OR D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND D.2.2 Suspend CORE ALTERATIONS. AND D.2.3 Initiate action to suspend OPDRVs.	 Immediately Immediately Immediately Immediately
E. Three control room AC subsystems inoperable in MODE 1, 2, or 3.	E.1 ~~Enter LCO 3.0.3.~~	~~Immediately~~

(continued)

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

Be in MODE 3.

12 hours

3.7 PLANT SYSTEMS

3.7.5 Main Condenser Offgas

LCO 3.7.5 The gross gamma activity rate of the noble gases measured at the main condenser air ejector shall be ≤ 243,600 µCi/second after decay of 30 minutes.

APPLICABILITY: MODE 1,

MODES 2 and 3 with any main steam line not isolated and steam jet air ejector (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~~

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One offsite circuit inoperable for reasons other than Condition B. AND One DG inoperable for reasons other than Condition B.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems—Operating," when Condition F is entered with no AC power source to any 4.16 kV emergency bus. ---------- F.1 Restore offsite circuit to OPERABLE status. OR F.2 Restore DG to OPERABLE status.	 12 hours 12 hours
G. Two or more DGs inoperable.	G.1 Restore all but one DG to OPERABLE status.	2 hours
H. Required Action and associated Completion Time of Condition A, B, C, D, E, F or G not met.	H.1 Be in MODE 3. ~~AND~~ ~~H.2 Be in MODE 4.~~	12 hours ~~36 hours~~
I. One or more offsite circuits and two or more DGs inoperable. OR Two or more offsite circuits and one DG inoperable for reasons other than Condition B.	I.1 Enter LCO 3.0.3.	Immediately

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
	~~AND~~	
~~OR~~	~~B.2 Be in MODE 4.~~	~~36 hours~~
~~Two or more DC electrical power subsystems inoperable.~~		

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 130 V on float charge.	7 days
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is ≤ 23.0 μohms for inter-cell connections and ≤ 82.8 μohms for inter-rack connections.	92 days
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that degrades performance.	18 months

(continued)

C. Two or more DC electrical power subsystems inoperable.	C.1 Be in MODE 3.	12 hours
	AND	
	C.2 Be in MODE 4.	36 hours

----------NOTE----------
LCO 3.0.4.a is not applicable when entering MODE 3.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more DC electrical power distribution subsystems inoperable for reasons other than Condition C.	D.1 Restore DC electrical power distribution subsystems to OPERABLE status.	7 days AND 176 hours from discovery of failure to meet LCO
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. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	F.1 Enter LCO 3.0.3.	Immediately

Revised Technical Specifications Pages - Unit 1

Enclosure 4 Contains the following Revised Unit 1 TS Pages	
3.5-2	3.7-2
3.5-3	3.7-3
3.5-4	3.7-12
3.5-12	3.7-15
3.6-16	3.7-16
3.6-18	3.7-18
3.6-24	3.8-6
3.6-28	3.8-24
3.6-33	3.8-36

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
D. HPCI System inoperable.	D.1	Verify by administrative means RCIC System is OPERABLE.	Immediately
	AND		
	D.2	Restore HPCI System to OPERABLE status.	14 days
E. HPCI System inoperable. AND One low pressure ECCS injection/spray subsystem is inoperable.	E.1	Restore HPCI System to OPERABLE status.	72 hours
	OR		
	E.2	Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours
F. One required ADS valve inoperable.	F.1	Restore required ADS valve to OPERABLE status.	14 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
G. One required ADS valve inoperable. AND One low pressure ECCS injection/spray subsystem inoperable.	G.1 OR G.2	Restore required ADS valve to OPERABLE status. Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours 72 hours
H. One required ADS valve inoperable. AND HPCI System inoperable.	H.1 OR H.2	Restore required ADS valve to OPERABLE status. Restore HPCI System to OPERABLE status.	72 hours 72 hours
I. Required Action and associated Completion Time of Condition D, E, F, G, or H not met.	I.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours
J. Two or more required ADS valves inoperable.	J.1 AND J.2	Be in MODE 3. Reduce reactor steam dome pressure to ≤ 150 psig.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A or B. OR HPCI System and two or more required ADS valves inoperable.	K.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) 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	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Two reactor building-to-suppression chamber vacuum breakers inoperable due to inoperable nitrogen backup subsystems.	D.1	Restore one vacuum breaker to OPERABLE status.	7 days
E. One line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening for reasons other than Condition C.	E.1	Restore the vacuum breaker(s) to OPERABLE status.	72 hours
F. Required Action and associated Completion Time of Condition E not met.	F.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours
G. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening for reasons other than Condition D.	G.1	Restore all vacuum breakers in one line to OPERABLE status.	2 hours
H. Required Action and associated Completion Time of Condition A, B, C, D, F, or G not met.	H.1 AND H.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.6 Suppression Chamber-to-Drywell Vacuum Breakers

LCO 3.6.1.6 Eight suppression chamber-to-drywell vacuum breakers shall be OPERABLE for opening.

AND

Ten 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. Required Action and associated Completion Time of Condition A not met.	B.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
C. One suppression chamber-to-drywell vacuum breaker not closed.	C.1	Close the open vacuum breaker.	4 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours

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 suppression pool cooling subsystem inoperable.	A.1	Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
C. Two RHR suppression pool cooling subsystems inoperable.	C.1	Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 AND D.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

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,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1 Restore secondary containment to OPERABLE status.	8 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment, or during OPDRVs.	C.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in the secondary containment. AND	Immediately

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable in MODE 1, 2 or 3.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR Two SGT subsystems inoperable in MODE 1, 2, or 3.	B.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One RHRSW subsystem inoperable for reasons other than Condition A.	B.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
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
D. Both RHRSW subsystems inoperable.	D.1 ----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.4.7 for RHR shutdown cooling made inoperable by RHRSW System. ---------- Restore one RHRSW subsystem to OPERABLE status.	8 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition D 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 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.	31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. OR Two CREV subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
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, or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D.1 Place OPERABLE CREV subsystem in radiation/smoke protection mode. OR D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND D.2.2 Suspend CORE ALTERATIONS. AND D.2.3 Initiate action to suspend OPDRVs.	Immediately Immediately Immediately Immediately

(continued)

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Three control room AC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One control room AC subsystem inoperable.	A.1	Restore control room AC subsystem to OPERABLE status.	30 days
B. Two control room AC subsystems inoperable.	B.1	Restore one inoperable control room AC 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	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- 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 during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------		
	D.1	Place OPERABLE control room AC subsystem(s) in operation.	Immediately
	OR		
	D.2.1	Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND		
	D.2.2	Suspend CORE ALTERATIONS.	Immediately
	AND		
	D.2.3	Initiate action to suspend OPDRVs.	Immediately
E. Three control room AC subsystems inoperable in MODE 1, 2, or 3.	E.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ----------	
		Be in MODE 3.	12 hours

(continued)

3.7 PLANT SYSTEMS

3.7.5 Main Condenser Offgas

LCO 3.7.5 The gross gamma activity rate of the noble gases measured at the main condenser air ejector shall be ≤ 243,600 μCi/second after decay of 30 minutes.

APPLICABILITY: MODE 1,

MODES 2 and 3 with any main steam line not isolated and steam jet air ejector (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	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. One offsite circuit inoperable for reasons other than Condition B. AND One DG inoperable for reasons other than Condition B.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems—Operating," when Condition F is entered with no AC power source to any 4.16 kV emergency bus. ----------		
	F.1	Restore offsite circuit to OPERABLE status.	12 hours
	OR		
	F.2	Restore DG to OPERABLE status.	12 hours
G. Two or more DGs inoperable.	G.1	Restore all but one DG to OPERABLE status.	2 hours
H. Required Action and associated Completion Time of Condition A, B, C, D, E, F or G not met.	H.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
I. One or more offsite circuits and two or more DGs inoperable. OR Two or more offsite circuits and one DG inoperable for reasons other than Condition B.	I.1	Enter LCO 3.0.3.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
C. Two or more DC electrical power subsystems inoperable.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 130 V on float charge.	7 days
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is ≤ 23.0 μohms for inter-cell connections and ≤ 82.8 μohms for inter-rack connections.	92 days
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that degrades performance.	18 months

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more DC electrical power distribution subsystems inoperable for reasons other than Condition C.	D.1	Restore DC electrical power distribution subsystems to OPERABLE status.	7 days AND 176 hours from discovery of failure to meet LCO
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours
F. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	F.1	Enter LCO 3.0.3.	Immediately

Revised Technical Specifications Pages - Unit 2

Enclosure 5 Contains the following Revised Unit 2 TS Pages	
3.5-2	3.7-2
3.5-3	3.7-3
3.5-4	3.7-12
3.5-12	3.7-15
3.6-16	3.7-16
3.6-18	3.7-18
3.6-24	3.8-6
3.6-28	3.8-24
3.6-33	3.8-36

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
D. HPCI System inoperable.	D.1	Verify by administrative means RCIC System is OPERABLE.	Immediately
	AND		
	D.2	Restore HPCI System to OPERABLE status.	14 days
E. HPCI System inoperable. AND One low pressure ECCS injection/spray subsystem is inoperable.	E.1	Restore HPCI System to OPERABLE status.	72 hours
	OR		
	E.2	Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours
F. One required ADS valve inoperable.	F.1	Restore required ADS valve to OPERABLE status.	14 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
G. One required ADS valve inoperable. AND One low pressure ECCS injection/spray subsystem inoperable.	G.1 OR G.2	Restore required ADS valve to OPERABLE status. Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours 72 hours
H. One required ADS valve inoperable. AND HPCI System inoperable.	H.1 OR H.2	Restore required ADS valve to OPERABLE status. Restore HPCI System to OPERABLE status.	72 hours 72 hours
I. Required Action and associated Completion Time of Condition D, E, F, G, or H not met.	I.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours
J. Two or more required ADS valves inoperable.	J.1 AND J.2	Be in MODE 3. Reduce reactor steam dome pressure to ≤ 150 psig.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A or B. OR HPCI System and two or more required ADS valves inoperable.	K.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) 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	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Two reactor building-to-suppression chamber vacuum breakers inoperable due to inoperable nitrogen backup subsystems.	D.1	Restore one vacuum breaker to OPERABLE status.	7 days
E. One line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening for reasons other than Condition C.	E.1	Restore the vacuum breaker(s) to OPERABLE status.	72 hours
F. Required Action and associated Completion Time of Condition E not met.	F.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours
G. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening for reasons other than Condition D.	G.1	Restore all vacuum breakers in one line to OPERABLE status.	2 hours
H. Required Action and associated Completion Time of Condition A, B, C, D, F, or G not met.	H.1 AND H.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.6 Suppression Chamber-to-Drywell Vacuum Breakers

LCO 3.6.1.6 Eight suppression chamber-to-drywell vacuum breakers shall be OPERABLE for opening.

AND

Ten 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. Required Action and associated Completion Time of Condition A not met.	B.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
C. One suppression chamber-to-drywell vacuum breaker not closed.	C.1	Close the open vacuum breaker.	4 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1	Be in MODE 3.	12 hours
	AND		
	D.2	Be in MODE 4.	36 hours

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 suppression pool cooling subsystem inoperable.	A.1	Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
C. Two RHR suppression pool cooling subsystems inoperable.	C.1	Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 AND D.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

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,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1 Restore secondary containment to OPERABLE status.	8 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment, or during OPDRVs.	C.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in the secondary containment. AND	Immediately

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable in MODE 1, 2 or 3.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met. OR Two SGT subsystems inoperable in MODE 1, 2, or 3.	B.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One RHRSW subsystem inoperable for reasons other than Condition A.	B.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
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
D. Both RHRSW subsystems inoperable.	D.1 ----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.4.7 for RHR shutdown cooling made inoperable by RHRSW System. ---------- Restore one RHRSW subsystem to OPERABLE status.	8 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition D 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 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.	31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. OR Two CREV subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
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, or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D.1 Place OPERABLE CREV subsystem in radiation/smoke protection mode. OR D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND D.2.2 Suspend CORE ALTERATIONS. AND D.2.3 Initiate action to suspend OPDRVs.	 Immediately Immediately Immediately Immediately

(continued)

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Three control room AC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,

During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One control room AC subsystem inoperable.	A.1 Restore control room AC subsystem to OPERABLE status.	30 days
B. Two control room AC subsystems inoperable.	B.1 Restore one inoperable control room AC 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 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- 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 during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	D.1 Place OPERABLE control room AC subsystem(s) in operation.	Immediately
	OR	
	D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	D.2.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	D.2.3 Initiate action to suspend OPDRVs.	Immediately
E. Three control room AC subsystems inoperable in MODE 1, 2, or 3.	E.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ----------	
	Be in MODE 3.	12 hours

(continued)

3.7 PLANT SYSTEMS

3.7.5 Main Condenser Offgas

LCO 3.7.5 The gross gamma activity rate of the noble gases measured at the main condenser air ejector shall be ≤ 243,600 μCi/second after decay of 30 minutes.

APPLICABILITY: MODE 1,

MODES 2 and 3 with any main steam line not isolated and steam jet air ejector (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	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ----------	
		Be in MODE 3.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. One offsite circuit inoperable for reasons other than Condition B. AND One DG inoperable for reasons other than Condition B.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems—Operating," when Condition F is entered with no AC power source to any 4.16 kV emergency bus. ----------		
	F.1	Restore offsite circuit to OPERABLE status.	12 hours
	OR		
	F.2	Restore DG to OPERABLE status.	12 hours
G. Two or more DGs inoperable.	G.1	Restore all but one DG to OPERABLE status.	2 hours
H. Required Action and associated Completion Time of Condition A, B, C, D, E, F or G not met.	H.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
I. One or more offsite circuits and two or more DGs inoperable. OR Two or more offsite circuits and one DG inoperable for reasons other than Condition B.	I.1	Enter LCO 3.0.3.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ----------	
		Be in MODE 3.	12 hours
C. Two or more DC electrical power subsystems inoperable.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 130 V on float charge.	7 days
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is ≤ 23.0 μohms for inter-cell connections and ≤ 82.8 μohms for inter-rack connections.	92 days
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that degrades performance.	18 months

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more DC electrical power distribution subsystems inoperable for reasons other than Condition C.	D.1 Restore DC electrical power distribution subsystems to OPERABLE status.	7 days AND 176 hours from discovery of failure to meet LCO
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
F. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	F.1 Enter LCO 3.0.3.	Immediately

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ACTIONS (continued)

C.1 ~~and C.2~~

If any Required Action and associated Completion Time of Condition A or B are not met, the plant must be brought to a MODE in ~~which the LCO does not apply~~ overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours ~~and to MODE 4 within 36 hours~~.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 15) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action C.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time~~s are~~ is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

D.1 and D.2

If the HPCI System is inoperable and the RCIC System is verified to be OPERABLE, the HPCI System must be restored to OPERABLE status within 14 days. In this condition, adequate core cooling is ensured by the OPERABILITY of the redundant and diverse low pressure ECCS injection/spray subsystems in conjunction with ADS. Also, the RCIC System will automatically provide makeup water at most reactor operating pressures. Immediate verification of RCIC OPERABILITY is therefore required when HPCI is inoperable. This may be performed as an administrative check by examining logs or other information to determine if RCIC is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate the OPERABILITY of the RCIC System. However, if the OPERABILITY of the RCIC System cannot be immediately verified, Condition I must be immediately entered. If a single active component fails concurrent with a design basis LOCA, there is a potential, depending on the specific failure, that the minimum required ECCS equipment will not be available.
A 14 day Completion Time is based on a reliability study cited in

BASES

ACTIONS

G.1 and G.2 (continued)

Since both a high pressure system (ADS) and a low pressure subsystem are inoperable, a more restrictive Completion Time of 72 hours is required to restore either the low pressure ECCS subsystem or the required ADS valve to OPERABLE status. This Completion Time is based on a reliability study cited in Reference 12 and has been found to be acceptable through operating experience.

H.1 and H.2

If the HPCI System is inoperable in addition to one required ADS valve inoperable, adequate core cooling is ensured by the OPERABILITY of the remaining ADS valves and the low pressure ECCS subsystems. However, overall ECCS reliability is reduced because a single active component failure concurrent with a design basis LOCA may result in the minimum required ECCS equipment not being available. Since a high pressure system is inoperable (HPCI) and the ADS cannot withstand a single active component failure, a more restrictive Completion Time of 72 hours is required to restore either the HPCI System or the required ADS valve to OPERABLE status. The Completion Time is based on a reliability study cited in Reference 12 and has been found to be acceptable through operating experience.

I.1 ~~and I.2~~

If any Required Action and associated Completion Time of Condition D, E, F, G, or H is not met, ~~or if two or more required ADS valves are inoperable,~~ the plant must be brought to a ~~condition~~ MODE in which ~~the LCO does not apply~~ overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours ~~and reactor steam dome pressure reduced to ≤ 150 psig within 36 hours~~.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 15) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action I.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time~~s are~~ is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

ACTIONS (continued)

J.1 and J.2

If two or more required ADS valves are inoperable, there is a reduction in the depressurization capability. The plant must be brought to a condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and reactor steam dome pressure reduced to ≤ 150 psig within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

K.1

When multiple ECCS subsystems are inoperable, as stated in Condition ~~J~~K, the plant is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

The flow path piping of each ECCS has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge lines of the HPCI System, CS subsystems, and LPCI subsystems full of water ensures that the ECCS will perform properly, injecting its full capacity into the RCS upon demand. This SR also prevents water hammer in the piping following an ECCS initiation signal. One acceptable method of ensuring that the lines are full is to vent at the high points. The 31 day Frequency is based on the gradual nature of void buildup in the ECCS piping, the procedural controls governing system operation, and operating experience.

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these are verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition to the accident position in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

(continued)

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SURVEILLANCE REQUIREMENTS

SR 3.5.1.12 (continued)

TIME testing. This exception is allowed since the ECCS instrumentation response time is a small part of the ECCS RESPONSE TIME (e.g., sufficient margin exists in the emergency diesel generator start time when compared to the instrumentation response time) (Ref. 14).

ECCS RESPONSE TIME tests are conducted every 24 months. The 24 month Frequency is consistent with the Brunswick refueling cycle.

REFERENCES

1. UFSAR, Section 6.3.2.2.3.
2. UFSAR, Section 6.3.2.2.4.
3. UFSAR, Section 6.3.2.2.1.
4. UFSAR, Section 6.3.2.2.2.
5. UFSAR, Section 15.2.
6. UFSAR, Section 15.6.
7. 10 CFR 50, Appendix K.
8. UFSAR, Section 6.3.3.
9. 10 CFR 50.46.
10. (Deleted.)
11. 10 CFR 50.36(c)(2)(ii).
12. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), Recommended Interim Revisions to LCOs for ECCS Components, December 1, 1975.
13. UFSAR, Section 6.3.3.7.
14. NEDO-32291-A, System Analyses for the Elimination of Selected Response Time Testing Requirements, October 1995.
15. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

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ACTIONS

A.1 and A.2 (continued)

OPERABLE status within 14 days. In this condition, loss of the RCIC System will not affect the overall plant capability to provide makeup inventory at high reactor pressure since the HPCI System is available to function during a loss of coolant accident (LOCA). OPERABILITY of the HPCI System is therefore verified immediately when the RCIC System is inoperable. This may be performed as an administrative check, by examining logs or other information, to determine if the HPCI System is out of service for maintenance or other reasons. It does not mean it is necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the HPCI System. If the OPERABILITY of the HPCI System cannot be immediately verified, however, Condition B must be immediately entered. For transients and certain abnormal events with no LOCA, RCIC (as opposed to HPCI) is the preferred source of makeup coolant because of its relatively small capacity, which allows easier control of the RPV water level. Therefore, a limited time is allowed to restore the inoperable RCIC to OPERABLE status.

The 14 day Completion Time is based on the availability of the HPCI System and the low probability of the occurrence of an event that would require the RCIC System.

B.1 ~~and B.2~~

If the RCIC System cannot be restored to OPERABLE status within the associated Completion Time, or if the HPCI System is simultaneously inoperable, the plant must be brought to a condition in which ~~the LCO does not apply~~ overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours ~~and reactor steam dome pressure reduced to ≤ 150 psig within 36 hours~~.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 4) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action B.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time~~s are~~ is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.5 (continued)

This SR is modified by a Note that excludes vessel injection during the Surveillance. Since all active components are testable and full flow can be demonstrated by recirculation through the test line, coolant injection into the RPV is not required during the Surveillance.

REFERENCES

1. UFSAR, Section 3.1.2.4.4.
2. UFSAR, Section 5.4.6.
3. 10 CFR 50.36(c)(2)(ii).
4. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

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ACTIONS

E.1 (continued)

threaten the ability to mitigate an event that causes a containment depressurization. Therefore, the inoperable vacuum breaker must be restored to OPERABLE status within 72 hours. This is consistent with the Completion Time for Condition A and the fact that the leak tight primary containment boundary is being maintained.

F.1

If one line has one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening and they are not restored within the Completion Time in Condition E, the remaining breakers in the remaining lines can provide the opening function. The plant must be brought to a condition in which overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 4) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action F.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

~~F.1~~G.1

With two lines with one or more vacuum breakers inoperable for opening, the primary containment boundary is intact. However, in the event of a containment depressurization, the function of the vacuum breakers is lost if the vacuum breakers are inoperable for reasons other than the Nitrogen Backup System being inoperable (Condition D). Therefore, all vacuum breakers in one line must be restored to OPERABLE status within 2 hours. This Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, which requires that primary containment be restored to OPERABLE status within 2 hours.

~~G.1 and G.2~~H.1 and H.2

If any Required Action and associated Completion Time of Condition A, B, C, D, F or G cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1

The bank of nitrogen bottles supplying each nitrogen backup subsystem header is required to be verified to be pressurized to ≥ 1130 psig to ensure sufficient motive force is available to the pneumatic butterfly valve actuators following a LOCA and subsequent primary containment isolation. A nitrogen bottle pressure of ≥ 1130 psig assures sufficient capacity to actuate and cycle the pneumatic butterfly valve for 22 hours including design system leakage. This Surveillance may be satisfied by

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.6 (continued)

24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage. Operating experience has demonstrated that these components will pass this Surveillance when performed at the 24 month Frequency. Therefore, the Frequency is concluded to be acceptable from a reliability standpoint.

REFERENCES

1. NRC Generic Letter GL 84-09, Recombiner Capability Requirements of 10 CFR 50.44(c)(3)(ii).
2. UFSAR, Section 6.2.
3. 10 CFR 50.36(c)(2)(ii).
4. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

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ACTIONS

A.1 (continued)

with those assumed for the design basis analysis. The 72 hour Completion Time is considered acceptable due to the low probability of an event in which the remaining vacuum breaker capability would not be adequate.

B.1

If a required suppression chamber-to-drywell vacuum breaker is inoperable for opening and is not restored to OPERABLE status within the required Completion Time, the plant must be brought to a condition in which overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 3) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action B.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

~~B.1~~C.1

With one vacuum breaker not closed, communication between the drywell and suppression chamber airspace could occur, and, as a result, there is the potential for primary containment overpressurization due to this bypass leakage if a LOCA were to occur. Therefore, the open vacuum breaker must be closed. A short time is allowed to close the vacuum breaker due to the low probability of an event that would pressurize primary containment. If vacuum breaker position indication is not available, an alternate method of verifying that the vacuum breakers are closed is to verify that the differential pressure between the suppression chamber and drywell is maintained > 0.5 times the initial differential pressure for 1 hour without nitrogen makeup. The 4 hour Completion Time is considered adequate to perform this test.

~~C.1 and C.2~~D.1 and D.2

If ~~any Required Action and associated~~ the open suppression chamber-to-drywell vacuum breaker cannot be closed within the required Completion Time ~~can not be met~~, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

Each vacuum breaker is verified closed (except when the vacuum breaker is performing its intended design function) to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication or by verifying that the differential pressure between the suppression chamber

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1 (continued)

and drywell is maintained > 0.5 times the initial differential pressure for 1 hour without nitrogen makeup. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel and procedural controls to ensure the drywell is normally maintained at a higher pressure than the suppression chamber, and has been shown to be acceptable through operating experience. This verification is also required within 6 hours after any discharge of steam to the suppression chamber from any source, and within 6 hours after an operation that causes any of the vacuum breakers to open.

A Note is added to this SR which allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

SR 3.6.1.6.2

Each required vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This is accomplished by verifying each required vacuum breaker operates through at least one complete cycle of full travel. This SR ensures that the safety analysis assumptions are valid. The 92 day Frequency of this SR was developed, based on Inservice Testing Program requirements to perform valve testing at least once every 92 days. In addition, this functional test is required within 12 hours after a discharge of steam to the suppression chamber from the SRVs.

SR 3.6.1.6.3

Verification of the vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of 0.5 psid is valid. The 24 month 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. The 24 month Frequency has been demonstrated to be acceptable, based on operating experience, and is further justified because of other surveillances performed more frequently that convey the proper functioning status of each vacuum breaker.

REFERENCES

1. UFSAR, Section 6.2.
2. 10 CFR 50.36(c)(2)(ii).
3. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

BASES

ACTIONS (continued)

B.1

If one RHR suppression pool cooling subsystem is inoperable and is not restored to OPERABLE status within the required Completion Time, the plant must be brought to a condition in which overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 5) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action B.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

C.1

With two RHR suppression pool cooling subsystems inoperable, one subsystem must be restored to OPERABLE status within 8 hours. In this condition, there is a substantial loss of the primary containment pressure and temperature mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and because alternative methods to remove heat from primary containment are available.

~~C.1 and C.2~~D.1 and D.2

If ~~any~~ the Required Action and associated Completion Time of Condition C cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 7700 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that the primary containment pressure and temperature can be maintained below the design limits during a DBA (Ref. 2). The normal test of centrifugal pump performance required by ASME OM Code (Ref. 4) is covered by the requirements of LCO 3.5.1, "ECCS—Operating." This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such tests confirm component OPERABILITY, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is 92 days.

REFERENCES

1. UFSAR, Section 6.2.1.1.3.2.
2. NEDC-32466P, Power Uprate Safety Analysis Report for Brunswick Steam Electric Plant Units 1 and 2, September 1995.
3. 10 CFR 50.36(c)(2)(ii).
4. ASME Code for Operation and Maintenance of Nuclear Power Plants.
5. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

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ACTIONS

A.1 (continued)

and 3. This time period also ensures that the probability of an accident (requiring secondary containment OPERABILITY) occurring during periods where secondary containment is inoperable is minimal.

B.1 ~~and B.2~~

If secondary containment cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which ~~the LCO does not apply~~ overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours ~~and to MODE 4 within 36 hours~~.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 7), because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action B.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time~~s~~ ~~are~~ is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

C.1 and C.2

Movement of recently irradiated fuel assemblies in the secondary containment and OPDRVs can be postulated to cause significant fission product release to the secondary containment. In such cases, the secondary containment is the only barrier to release of fission products to the environment. Therefore, movement of recently irradiated fuel assemblies must be immediately suspended if the secondary containment is inoperable. Suspension of this activity shall not preclude completing an action that involves moving a component to a safe position. Also, action must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

LCO 3.0.3 is not applicable while in MODE 4 or 5. However, since recently irradiated fuel assembly movement can occur in MODE 1, 2, or 3, Required Action C.1 has been modified by a Note stating that

BASES (continued)

REFERENCES

1. NEDC-32466P, Power Uprate Safety Analysis Report for Brunswick Steam Electric Plant Units 1 and 2, September 1995.
2. UFSAR, Section 15.6.4.
3. Not used.
4. 10 CFR 50.36(c)(2)(ii).
5. 10 CFR 50.36(c) (2) (ii).
6. Regulatory Guide 1.52, Revision 1.
7. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

BASES

APPLICABILITY (continued)

(OPDRVs) or during movement of recently irradiated fuel assemblies in the secondary containment. Due to radioactive decay, the SGT System is only required to be OPERABLE during fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours).

ACTIONS

A.1

With one SGT subsystem inoperable in MODE 1, 2, or 3, the inoperable subsystem must be restored to OPERABLE status in 7 days. In this condition, the remaining OPERABLE SGT subsystem is adequate to perform the required radioactivity release control function. However, the overall system reliability is reduced because a single failure in the OPERABLE subsystem could result in the radioactivity release control function not being adequately performed. The 7 day Completion Time is based on consideration of such factors as the availability of the OPERABLE redundant SGT subsystem and the low probability of a DBA occurring during this period.

B.1 ~~and B.2~~

In MODE 1, 2, or 3, if one SGT subsystem cannot be restored to OPERABLE status within the required Completion Time or both SGT subsystems are inoperable, the plant must be brought to a MODE in which ~~the LCO does not apply~~ overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours ~~and to MODE 4 within 36 hours~~.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 8) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action B.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time~~s~~ ~~are~~ is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.3.2

This SR verifies that the required SGT filter testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The SGT System filter tests are in accordance with Regulatory Guide 1.52 (Ref. 6), except as specified in Specification 5.5.7, "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). It is noted that, per the basis provided by ESR 99-00055 (Ref. 7), system flow rate is determined using installed calibrated flow orifice plates. Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.6.4.3.3

This SR verifies that each SGT subsystem starts on receipt of an actual or simulated initiation signal. While this Surveillance can be performed with the reactor at power, operating experience has demonstrated that these components will usually pass the Surveillance when performed at the 24 month Frequency. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation," overlaps this SR to provide complete testing of the safety function. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

REFERENCES

1. UFSAR, Section 6.5.1.
2. NEDC-32466P, Power Uprate Safety Analysis Report for Brunswick Steam Electric Plant Units 1 and 2, September 1995.
3. UFSAR Section 15.6.4.
4. Not used.
5. 10 CFR 50.36(c)(2)(ii).
6. Regulatory Guide 1.52, Revision 1.
7. ESR 99-00055, SBGT and CBEAF Technical Specification Surveillance Flow Measurement.
8. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

BASES

ACTIONS (continued)

B.1

Required Action B.1 is intended to handle the inoperability of one RHRSW subsystem for reasons other than Condition A. The Completion Time of 7 days is allowed to restore the RHRSW subsystem to OPERABLE status. With the unit in this condition, the remaining OPERABLE RHRSW subsystem is adequate to perform the RHRSW heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE RHRSW subsystem could result in loss of RHRSW function. The 7 day Completion Time is based on the Completion Time provided for the RHR suppression pool cooling function, the redundant RHRSW capabilities afforded by the OPERABLE subsystem, and the low probability of an event occurring requiring RHRSW during this period.

A Note to the Required Action indicates that the applicable Conditions of LCO 3.4.7, be entered and Required Actions taken if the inoperable RHRSW subsystem results in inoperable RHR shutdown cooling. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

C.1

If one RHRSW subsystem is inoperable or one RHRSW pump in one or one subsystem is inoperable and not restored within the provided Completion Times, the plant must be brought to a condition in which overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 7) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action C.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

~~C.1~~D.1

With both RHRSW subsystems inoperable (e.g., one or two RHRSW pumps inoperable in each subsystem), the RHRSW System is not

capable of performing its intended function. At least one subsystem must be restored to OPERABLE status within 8 hours. The 8 hour Completion Time for restoring one RHRSW subsystem to OPERABLE status, is based on the Completion Time provided for the RHR suppression pool cooling function.

The Required Action is modified by a Note indicating that the applicable Conditions of LCO 3.4.7, be entered and Required Actions taken if the inoperable RHRSW subsystem results in inoperable RHR shutdown cooling. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

~~D.1 and D.2~~E.1 and E.2

If the RHRSW subsystems cannot be not restored to OPERABLE status within the associated Completion Times, the unit must be placed in a MODE in which the LCO does not apply. 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 (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1

Verifying the correct alignment for each manual, power operated, and automatic valve in each RHRSW subsystem flow path provides assurance that the proper flow paths exist for RHRSW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves are verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position, and yet considered in the correct position, provided it can be realigned to its accident position. This is acceptable because the RHRSW System is a manually initiated system.

This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

REFERENCES

1. UFSAR, Section 9.2.1.2.
2. UFSAR, Chapter 6.2.
3. NEDC-32466P, Power Uprate Safety Analysis Report for Brunswick Steam Electric Plant Units 1 and 2, September 1995; and Supplement 1, March 1996.
4. Letter BR5-96-074, Long Term Suppression Pool Temperature-Suppression Pool Cooling Mode for Long Term Containment Cooling, from M. E. Ball (GE) to R. E. Helme (CP&L), September 19, 1996.
5. 10 CFR 50.36(c)(2)(ii).
6. GENE-B2100565-09, Technical Specification Improvements to the Emergency Core Cooling System for the Carolina Power and Light Brunswick Steam Electric Plant Units 1 and 2, Revision 1, October 1996.
7. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

BASES

ACTIONS (continued)

C.1 ~~and C.2~~

In MODE 1, 2, or 3, if any Required Action and required Completion Time of Condition A or B cannot be met or two CREV subsystems are inoperable for reasons other than Condition B, the unit must be placed in a MODE that minimizes ~~accident~~ overall plant 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~~.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 9) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action C.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time~~s~~ ~~are~~ is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1, D.2.1, D.2.2, and D.2.3

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, during CORE ALTERATIONS, or during OPDRVs, if the inoperable CREV subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CREV subsystem may be placed in the radiation/smoke protection mode. 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 D.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.3.4

This SR verifies that on an actual or simulated initiation signal, each CREV subsystem starts and operates. This SR includes ensuring outside air flow is diverted to the HEPA filter and charcoal adsorber bank of each CREV subsystem. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.7.1 overlaps this SR to provide complete testing of the safety function. Operating experience has demonstrated that the components will usually pass the SR when performed at the 24 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

REFERENCES

1. UFSAR, Section 6.4.
2. UFSAR, Section 9.4.
3. UFSAR, Section 6.4.4.1.
4. 10 CFR 50.36(c)(2)(ii).
5. ESR 99-00055, SBGT and CBEAF Technical Specification Surveillance Flow Measurement.
6. Regulatory Guide 1.196
7. NEI 99-03, "Control Room Habitability Assessment," June 2001.
8. 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).
9. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

BASES (continued)

ACTIONS

A.1

With one control room AC subsystem inoperable, the inoperable control room AC subsystem must be restored to OPERABLE status within 30 days. With the unit in this condition, the remaining OPERABLE control room AC subsystems are adequate to perform the control room air conditioning function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystems could result in loss of the control room air conditioning function. The 30 day Completion Time is based on the low probability of an event occurring requiring control room isolation, the consideration that the remaining subsystems can provide the required protection, and the availability of alternate safety and nonsafety cooling methods.

B.1

With two control room AC subsystems inoperable, the Control Room AC System may not be capable of performing the intended function. However, since the BNP control room is common to both Units 1 and 2, the risk associated with continued operation for a relatively short time could be less than that associated with an immediate controlled shutdown of both units. Therefore, additional time is allowed to restore one of the inoperable control room AC subsystems to OPERABLE status. The 72 hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining the Control Room AC System OPERABLE. This time period also ensures that the probability of an accident (requiring Control Room AC System OPERABILITY) occurring during periods when two control room AC subsystems are inoperable is minimal.

C.1~~ and C.2~~

In MODE 1, 2, or 3, if Required Action A.1 or B.1 cannot be completed within the associated Completion Time, the unit must be placed in a MODE that minimizes overall plant 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~~.

Remaining in the Applicability ofthe LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 3) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action C.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and

establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time~~s~~ ~~are~~ is 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

ACTIONS (continued)

D.1, D.2.1, D.2.2, and D.2.3

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 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, during CORE ALTERATIONS, or during OPDRVs, if Required Action A.1 or B.1 cannot be completed within the associated Completion Time, the OPERABLE control room AC subsystem or subsystems may be placed immediately in operation. This action ensures that the remaining subsystem(s) is OPERABLE, that no failures that would prevent actuation will occur, and that any active failure will be readily detected.

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 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. Also, 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.

E.1

If three control room AC subsystems are inoperable in MODE 1, 2, or 3, the Control Room AC System may not be capable of performing the intended function. ~~Therefore, LCO 3.0.3 must be entered immediately.~~ Therefore, the plant must be brought to a MODE in which overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 3) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action E.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable,

because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

ACTIONS (continued)

F.1, F.2, and F.3

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 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 a sufficient reason to require a reactor shutdown.

During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs, with three control room AC subsystems inoperable, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, CORE ALTERATIONS and handling 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. Also, 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

This SR verifies that the heat removal capability of the system is sufficient to remove the control room heat load assumed in the safety analyses. The SR consists of a combination of testing and calculation. The 24 month Frequency is appropriate since significant degradation of the Control Room AC System is not expected over this time period.

REFERENCES

1. UFSAR, Section 6.4.2.
2. 10 CFR 50.36(c)(2)(ii).
3. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

BASES (continued)

LCO

To ensure compliance with the assumptions of the Main Condenser Offgas System failure event (Ref. 1), the fission product release rate should be consistent with a noble gas release to the reactor coolant of 100 µCi/MWt-second after decay of 30 minutes. The LCO is established consistent with this requirement (2436 MWt x 100 µCi/MWt-second = 243,600 µCi/second) and is based on the original licensed RATED THERMAL POWER.

APPLICABILITY

The LCO is applicable when steam is being exhausted to the main condenser and the resulting noncondensibles are being processed via the Main Condenser Offgas System. This occurs during MODE 1, and during MODES 2 and 3 with any main steam line not isolated and the SJAE in operation. In MODES 4 and 5, main steam is not being exhausted to the main condenser and the requirements are not applicable.

ACTIONS

A.1

If the offgas radioactivity rate limit is exceeded, 72 hours is allowed to restore the gross gamma activity rate to within the limit. The 72 hour Completion Time is reasonable, based on engineering judgment, the time required to complete the Required Action, the large margins associated with permissible dose and exposure limits, and the low probability of a Main Condenser Offgas System failure.

B.1, B.2, and B.3~~.1, and B.3.2~~

If the gross gamma activity rate is not restored to within the limits in the associated Completion Time, all main steam lines or the SJAE must be isolated. This isolates the Main Condenser Offgas System from significant sources of radioactive steam. The main steam lines are considered isolated if at least one main steam isolation valve in each main steam line is closed, and at least one main steam line drain valve in each drain line is closed. The 12 hour Completion Time is reasonable, based on operating experience, to perform the actions from full power conditions in an orderly manner and without challenging unit systems.

(continued)

BASES

ACTIONS

B.1, B.2, B.3.1, and B.3.2 (continued)

An alternative to Required Actions B.1 and B.2 is to place the unit in a MODE in which ~~the LCO does not apply~~ overall plant risk is minimized. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours ~~and in MODE 4 within 36 hours~~.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 4) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action B.3 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time~~s~~ ~~are~~ is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

This SR, on a 31 day Frequency, requires an isotopic analysis of an offgas sample (taken at the discharge of the main condenser air ejector prior to dilution or discharge) to ensure that the required limits are satisfied. The noble gases to be sampled are Xe-133, Xe-135, Xe-138, Kr-85m, Kr-87, and Kr-88. If the measured rate of radioactivity increases significantly (by ≥ 50% after correcting for expected increases due to changes in THERMAL POWER), an isotopic analysis is also performed within 4 hours after the increase is indicated (by the condenser air ejector noble gas activity monitor), to ensure that the increase is not indicative of a sustained increase in the radioactivity rate. The 31 day Frequency is adequate in view of other instrumentation that continuously monitor the offgas, and is acceptable, based on operating experience.

This SR is modified by a Note indicating that the SR is not required to be performed until 31 days after any main steam line is not isolated and the SJAE is in operation. Only in this condition can radioactive fission gases be in the Main Condenser Offgas System at significant rates.

REFERENCES

1. UFSAR, Section 11.3.
2. 10 CFR 50.67.
3. 10 CFR 50.36(c)(2)(ii).
4. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

BASES

ACTIONS

G.1 (continued)

According to Regulatory Guide 1.93 (Ref. 9), with two or more DGs inoperable, operation may continue for a period that should not exceed 2 hours. While this Action allows more than two DGs to be inoperable, Regulatory Guide 1.93 (Ref. 9) assumes only two DGs are required by the LCO, and a loss of those two DGs results in a total loss of onsite power to the Class 1E Electrical Power Distribution System. Thus, with the BNP electrical design, a loss of the four DGs results in the same condition assumed in Regulatory Guide 1.93 (Ref. 9).

H.1 ~~and H.2~~

If the inoperable AC electrical power sources cannot be restored to OPERABLE status within the associated Completion Time, the unit must be brought to a MODE in which ~~the LCO does not apply~~ overall plant risk is minimized. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours ~~and to MODE 4 within 36 hours~~.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 14) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action H.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time~~s~~ ~~are~~ is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

I.1

Condition I corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this severely degraded level, any further losses in the AC electrical power system may cause a loss of function. Therefore, no additional time is justified for continued operation. The unit is required by LCO 3.0.3 to commence a controlled shutdown.

SURVEILLANCE

The AC sources are designed to permit inspection and testing of all

BASES

REFERENCES (continued)

11. Regulatory Guide 1.9, July 1993, Revision 3.

12. Regulatory Guide 1.137, January 1978.

13. IEEE Standard 308.

14. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

BASES

ACTIONS

A.1 (continued)

Therefore,the Required Actions of Condition A are modified by a Note to indicate that when Condition A results in de-energization of an AC electrical power distribution subsystem or a DC electrical power distribution subsystem, Actions of LCO 3.8.7 must be immediately entered. This allows Condition A to provide requirements for the loss of a DC electrical power subsystem without regard to whether a distribution subsystem is de-energized. LCO 3.8.7 provides the appropriate restriction for a de-energized distribution subsystem.

Condition A represents one division with a loss of ability to completely respond to an event, and a potential loss of ability to remain energized during normal operation. It is therefore imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for complete loss of DC power to the affected division.

If one of the required DC electrical power subsystems is inoperable (e.g., inoperable battery, inoperable battery charger(s), or inoperable battery charger and associated inoperable battery), the remaining DC electrical power subsystems have the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst case single failure could, however, result in the loss of minimum necessary DC electrical subsystems to mitigate a worst case accident, continued power operation should not exceed 7 days. The Completion time is based on the capacity and capability of the remaining DC Sources, including the enhanced reliability afforded by the capability to manually transfer DC loads to the opposite unit's DC electrical power distribution subsystems.

B.1 ~~and B.2~~

If the DC electrical power subsystem cannot be restored to OPERABLE status within the required Completion Time ~~or if two or more DC electrical power subsystems are inoperable~~, the unit must be brought to a MODE in which ~~the LCO does not apply~~ overall plant risk is minimized. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours ~~and to MODE 4 within 36 hours~~.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 12) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action B.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and

establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

(continued)

BASES

ACTIONS

B.1 ~~and B.2~~ (continued)

The allowed Completion Time~~s~~ ~~are~~ is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. ~~The Completion Time to bring the unit to MODE 4 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).~~

C.1 and C.2

If two or more DC electrical power subsystem are inoperable, the unit must be brought to a MODE in which overall plant risk is minimized. To achieve this status, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. The Completion Time to bring the unit to MODE 4 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

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 and maintain the battery in a fully charged state. The voltage requirements are based on the nominal design voltage of the battery. The 7 day Frequency is conservative when compared with manufacturer recommendations and IEEE-450 (Ref. 8).

SR 3.8.4.2

Visual inspection to detect corrosion of the battery cells and connections, or measurement of the resistance of each inter-cell and inter-rack connection, provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The connection resistance limits are ≤ 1.2 times the established benchmark resistance values for the connections or ≤ 5μohms above the established benchmark resistance values for the connections, whichever is higher. These connection resistance acceptance criteria were derived from IEEE-450 (Ref. 8) and IEEE-484 (Ref. 9), respectively.

The Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is 92 days. This Frequency is consistent with manufacturers recommendations.

(continued)

BASES

REFERENCES (continued)

6. 10 CFR 50.36(c)(2)(ii).
7. Regulatory Guide 1.93, December 1974.
8. IEEE Standard 450, 1987.
9. IEEE Standard 484, 1996.
10. UFSAR, Section 8.3.2.
11. IEEE Standard 485, 1983.
12. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

BASES

ACTIONS

D.1 (continued)

distribution system. At this time, an AC bus could again become inoperable, and the DC electrical power distribution system could be restored OPERABLE. This could continue indefinitely.

This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This allowance results in establishing the "time zero" at the time the LCO was initially not met, instead of at the time Condition D was entered. The 176 hour Completion Time is an acceptable limitation on this potential of failing to meet the LCO indefinitely.

E.1 ~~and E.2~~

If the inoperable electrical power distribution subsystem(s) cannot be restored to OPERABLE status within the associated Completion Time, the unit must be brought to a MODE in which ~~the LCO does not apply~~ overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 ~~hours and to MODE 4 within 36 hours~~.

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 4) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action E.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, 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.

The allowed Completion Time~~s~~ ~~are~~ is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

F.1

Condition F corresponds to a level of degradation in the electrical power distribution system that causes a required safety function to be lost. When more than one AC or DC electrical power distribution subsystem is lost, and this results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

This Surveillance verifies that the AC and DC electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. This includes verifying that distribution bus tie breakers are open and control power transfer switches associated with the 4.16 kV and 480 V emergency buses and transfer switches associated with the ESS and DG panels are aligned to their normal DC sources. The correct breaker alignment ensures the appropriate separation and independence of the electrical buses are maintained, and 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. This may be performed by verification of absence of low voltage alarms or by verifying a load powered from the bus is operating. The 7 day Frequency takes into account the redundant capability of the AC and DC electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.

SR 3.8.7.2

This Surveillance verifies that no combination of more than two power conversion modules (consisting of either two lighting inverters or one lighting inverter and one plant uninterruptible power supply unit) are aligned to Division II (bus B). Two power conversion modules aligned to Division II (bus B) was an initial assumption in the DC battery load study. Limiting two power conversion modules to be aligned to Division II ensures the associated batteries will supply DC power to safety related equipment during a design basis event. The 7 day Frequency takes into account the redundant capability of the DC electrical power distribution subsystems and indications available in the control room to alert the operator of power conversion module misalignment.

REFERENCES

1. UFSAR, Chapter 6.
2. UFSAR, Chapter 15.
3. 10 CFR 50.36(c)(2)(ii).
4. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

Regulatory Commitments

The following table identifies those actions committed to by Duke Energy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments. Please direct questions regarding these commitments to Mr. Lee Grzeck, Manager - Regulatory Affairs, at (910) 457-2487.

Regulatory Commitments	Due Date / Event
Duke Energy will follow the guidance established in Section 11 of NUMARC 93-01, "Industry Guidance for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Nuclear Management and Resource Council, Revision 3, July 2000.	Ongoing
Duke Energy will follow the guidance established in TSTF-IG-05-02, Revision 2, "Implementation Guidance for TSTF-423, Revision 1, 'Technical Specifications End States, NEDC-32988-A.'"	Upon implementation of amendment.