Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-19-010

January 25, 2019

10 CFR 50.90

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

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: **Application to Revise Technical Specifications to Adopt Technical Specifications Task Force (TSTF)-542, "Reactor Pressure Vessel Water Inventory Control," Revision 2 (BFN-TS-513)**

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) 10 CFR 50.90, Tennessee Valley Authority (TVA) is submitting a request for an amendment to the Technical Specifications (TS) for the Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3.

In accordance with TSTF-542, the proposed changes replace existing TS requirements related to "operations with a potential for draining the reactor vessel" with new requirements on Reactor Pressure Vessel Water Inventory Control to continue to protect Safety Limit 2.1.1.3. Safety Limit 2.1.1.3 requires reactor vessel water level to be greater than the top of active irradiated fuel.

Attachment 1 provides a description and assessment of the proposed changes. Attachments 2, 3, and 4 provide the existing TS pages marked to show the proposed changes for the three units. Attachments 5, 6, and 7 provide revised (clean) TS pages. Attachment 8 provides existing TS Bases pages marked to show the proposed changes for information only. Note – Only the Unit 1 TS Bases pages have been provided, as the Unit 2 and 3 changes will be nearly identical.

Approval of the proposed amendment is requested by one year from the date of this letter. The 3-unit BFN refueling outages are sequenced to occur in coordinated intervals (Spring, Fall, Spring) followed by 10 months of 3-unit power operation before the next refueling outage interval begins. Because of shared-system complexity and to ensure uniform implementation across all three units, the amendments shall be implemented for all three units prior to the start of the interval beginning with the BFN Unit 3 Spring 2022 Cycle 20 refueling outage (3U20).

A001
NRR

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the TS change qualifies for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). In accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and attachments to the Alabama State Department of Public Health.

There are no new regulatory commitments contained in this submittal. Please address any questions regarding this submittal to Michael A. Brown at (423) 751-3275.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 25th day of January 2019.

Respectfully,

E. K. Henderson
Director, Nuclear Regulatory Affairs

Attachments:
1. Description and Assessment
2. Proposed Technical Specification Changes (Unit 1 Mark-Up)
3. Proposed Technical Specification Changes (Unit 2 Mark-Up)
4. Proposed Technical Specification Changes (Unit 3 Mark-Up)
5. Revised Technical Specification Pages (Unit 1 Clean)
6. Revised Technical Specification Pages (Unit 2 Clean)
7. Revised Technical Specification Pages (Unit 3 Clean)
8. Proposed Technical Specification Bases Changes (Unit 1 Mark-Up) (Information Only)

cc (w/Attachments):

NRC Regional Administrator – Region II
NRC Senior Resident Inspector – Browns Ferry Nuclear Plant
NRC Project Manager - Browns Ferry Nuclear Plant
State Health Officer, Alabama State Department of Health

Attachment 1 to CNL-19-010

Description and Assessment

DESCRIPTION AND ASSESSMENT

1.0 DESCRIPTION

The proposed change replaces existing Technical Specifications (TS) requirements related to "operations with a potential for draining the reactor vessel" (OPDRVs) with new requirements on Reactor Pressure Vessel Water Inventory Control (RPV WIC) to protect Safety Limit 2.1.1.3. Safety Limit 2.1.1.3 requires reactor vessel water level to be greater than the top of active irradiated fuel.

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Tennessee Valley Authority (TVA) has reviewed the safety evaluation provided to the Technical Specifications Task Force (TSTF) on December 20, 2016, as well as the information provided in TSTF-542. TVA has concluded that the justifications presented in TSTF-542 and the safety evaluation prepared by the NRC staff are applicable to the Browns Ferry Nuclear Plant (BFN) – Units 1, 2, and 3 and justify this amendment for the incorporation of the changes to the BFN TS.

The following BFN TS reference or are related to OPDRVs and are affected by the proposed change:

3.3.5.1	Emergency Core Cooling System (ECCS) Instrumentation
3.3.6.1	Primary Containment Isolation Instrumentation
3.3.6.2	Secondary Containment Isolation Instrumentation
3.3.7.1	Control Room Emergency Ventilation (CREV) System Instrumentation
3.5.2	ECCS - Shutdown
3.6.1.3	Primary Containment Isolation Valves (PCIVs)
3.6.4.1	Secondary Containment
3.6.4.2	Secondary Containment Isolation Valves (SCIVs)
3.6.4.3	Standby Gas Treatment (SGT) System
3.7.3	Control Room Emergency Ventilation (CREV) System
3.7.4	Control Room Air Conditioning (AC) System
3.8.2	AC Sources - Shutdown
3.8.5	DC Sources - Shutdown
3.8.8	Distribution Systems - Shutdown

2.2 Variations

TVA is proposing the following variations from the TS changes described in TSTF-542 or the applicable parts of the Nuclear Regulatory Commission (NRC) staff's safety evaluation. These variations do not affect the applicability of TSTF-542 or the NRC staff's safety evaluation to the proposed license amendment.

BFN is a BWR/4 plant. The proposed variations are based on the TSTF-542 markup of NUREG-1433 without a Setpoint Control Program. The BFN TS do not contain a Surveillance Frequency Control Program. Therefore, the references to a Surveillance Frequency Control Program for TS 3.3.5.2 and 3.5.2 are not included in the proposed TS.

2.2.1 Administrative Variations

2.2.1.1 The BFN TS utilize different numbering, titles, and other minor differences than the Standard Technical Specifications (STS) on which TSTF-542 was based. The following table relates the administrative differences between the TS described in TSTF-542 and the BFN TS:

NUREG-1433 / TSTF-542 Number	**NUREG-1433 / TSTF-542 Nomenclature**	**BFN Number**	**BFN Nomenclature**
Table 3.3.5.1-1 Function 1.c	Reactor Steam Dome Pressure – Low (Injection Permissive)	Table 3.3.5.1-1 Function 1.c	Reactor Steam Dome Pressure – Low (Injection Permissive and ECCS Initiation)
Table 3.3.5.2-1 Function 1.b (new)	Required Channels Per Function [1 per pump(a)]	Table 3.3.5.2-1 Function 1.b (new)	Required Channels Per Function 1 per subsystem[(a)]
TS 3.3.6.1 Required Action J.2 (old)	Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System	TS 3.3.6.1 Required Action I.2 (old)	Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System
TS Table 3.3.7.1-1 Function 5	Control Room Air Inlet Radiation - High	TS Table 3.3.7.1-1 Function 5	Control Room Air Supply Duct Radiation - High
TS 3.5.2 Required Action B.1 (old)	Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs)	TS 3.5.2 Required Action B.1 (old)	Initiate action to suspend OPDRVs
Surveillance Requirement (SR) 3.5.2.3 (old)	Verify for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve	SR 3.5.2.2 (old)	Verify for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve

NUREG-1433 / TSTF-542 Number	NUREG-1433 / TSTF-542 Nomenclature	BFN Number	BFN Nomenclature
SR 3.5.2.4 (old)	Verify each required ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position	SR 3.5.2.3 (old)	Verify each required ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position
SR 3.5.2.5 (old)	Verify each required ECCS pump develops the specified flow rate [against a system head corresponding to the specified reactor pressure]. [Pump Performance Table]	SR 3.5.2.4 (old)	Verify each required ECCS pump develops the specified flow rate [against a system head corresponding to the specified reactor pressure. [Pump Performance Table] [1]
SR 3.5.2.7 (new)	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal	SR 3.5.2.6 (new)	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal
TS 3.7.4	Main Control Room Environmental Control (MCREC) System	TS 3.7.3	Control Room Emergency Ventilation (CREV) System
TS 3.7.5	Control Room Air Conditioning (AC) System	TS 3.7.4	Control Room Air Conditioning (AC) System
TS 3.8.5 Required Action B.2.3 (old)	Initiate action to suspend operations with a potential for draining the reactor vessel.	TS 3.8.5 Required Action A.2.3 (old)	Initiate action to suspend operations with a potential for draining the reactor vessel.

[1] The format of the ECCS Pump Performance Table is different between the two SRs, but contains equivalent information.

NUREG-1433 / TSTF-542 Number	NUREG-1433 / TSTF-542 Nomenclature	BFN Number	BFN Nomenclature
TS 3.8.5 Required Action B.2.3 (new)	Initiate action to restore required DC electrical power subsystems to Operable status.	TS 3.8.5 Required Action A.2.3 (new)	Initiate action to restore required DC electrical power subsystems or systems to Operable status.
TS 3.8.10	Distribution Systems - Shutdown	TS 3.8.8	Distribution Systems - Shutdown

2.2.1.2 The BFN TS do not contain some of the STS on which TSTF-542 made changes. The following table dispositions the TSTF-542 TS changes that are not applicable to BFN:

NUREG-1433 / TSTF-542 Number	NUREG-1433 / TSTF-542 Description	Disposition
Table 3.3.5.1-1 Functions 1.c and 2.c. invoking SR 3.3.5.1.5	Perform Channel Calibration	The NUREG-1433 SR 3.3.5.1.5 is performed with a cyclic frequency, and correlates with BFN SR 3.3.5.1.5. For these functions, SR 3.3.5.1.4 is performed, which has a 184 day frequency. However, the justification provided in TSTF-542 remains valid for removing the Mode 4 and Mode 5 applicability for performing this SR.
Table 3.3.5.1-1 Functions 1.a/c and 2.a/c invoking SR 3.3.5.1.7	ECCS Response Time testing	Removal of this SRs applicability to Modes 4 and 5 from Table 3.3.5.1-1 Functions 1.a, 1.c, 2.a, and 2.c is not applicable to BFN.
TS 3.3.5.3 (new) Condition D	As required by Required Action A.1 and referenced in Table 3.3.5.3-1 (new)	BFN Condition D does not invoke Table 3.3.5.2-1 (old). Therefore, the change in table designation is not applicable.
SR 3.3.5.3.3 (new)	Calibrate trip units	BFN does not have this requirement. Therefore, the re-designation of SR 3.3.5.2.3 to 3.3.5.3.3 is not applicable to this surveillance.
SR 3.3.5.3.4 (new)	Perform Channel Calibration [92 days]	BFN does not have this requirement. Therefore, the re-designation of SR 3.3.5.2.4 to 3.3.5.3.4 is not applicable to this surveillance.

NUREG-1433 / TSTF-542 Number	NUREG-1433 / TSTF-542 Description	Disposition
TS Table 3.3.5.2-1 Function 4.a	Reactor Water Cleanup (RWCU) System Isolation Reactor Vessel Water Level – Low Low, Level 2	The analogous BFN function actuates on Level 3 rather than Level 2. However, for purposes of including this function on new Table 3.3.5.2-1 this is an administrative variation.
TS Table 3.3.5.3-1 (new) Function 3	Condensate Storage Tank Level - Low	BFN does not have this function. Therefore, the re-designation of the SR nomenclature is not applicable.
TS Table 3.3.6.2-1 Function 1	Reactor Vessel Water Level – Low Low, Level 2	The analogous BFN function actuates on Level 3 rather than Level 2. However, for purposes of removing Footnote (a) from this function this is an administrative variation.
TS Table 3.3.6.2-1 Footnote (b) (old)	During movement of [recently] irradiated fuel assemblies in [secondary] containment	BFN does not have this footnote. Therefore, its re-designation as Footnote (a) is not applicable for Functions 3 and 4. As a result, with the deletion of Footnote (a), the comma is being removed after Mode 3 for Functions 3 and 4. Additionally, BFN does not have Function 5 for which Footnote (b) is re-designated.
TS Table 3.3.7.1-1 Function 1	Reactor Vessel Water Level – Low Low Low, Level 1	The analogous BFN function actuates on Level 3 rather than Level 1. However, for purposes of removing Footnote (a) from this function this is an administrative variation.
TS Table 3.3.7.1-1 Footnote (b) (old)	During movement of [recently] irradiated fuel assemblies in [secondary] containment	BFN does not have this footnote. Therefore, its re-designation as Footnote (a) is not applicable for Functions 4 and 5. As a result, with the deletion of Footnote (a), the comma is being removed after Mode 3 for Functions 4 and 5.
SR 3.5.2.1 (old) SR 3.5.2.2 (old)	Verify for each required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ [12 ft 2 inches] Verify for each required core spray (CS) subsystem, the: a) Suppression pool	BFN SR 3.5.2.1 (old) encompasses equivalent suppression pool level verification for both LPCI and CS. Therefore, the revised wording will be "the required ECCS," consistent with the changes made in new BFN SRs 3.5.2.3, 3.5.2.4, 3.5.2.5, and 3.5.2.7, which is an administrative variation. The deleted Note in SR 3.5.2.2 (old) and verification of condensate storage tank level is not applicable to BFN.

NUREG-1433 / TSTF-542 Number	NUREG-1433 / TSTF-542 Description	Disposition
	water level is ≥ [12 ft 2 inches] or b) Condensate storage tank water level is ≥ [12 ft]	
TS 3.8.8	Inverters - Shutdown	BFN does not have this TS; therefore, it is not applicable.

2.2.1.3 Certain variations are taken in footnote changes in Tables 3.3.5.1-1 and 3.3.6.1-1. As described in the following table, these are considered to be administrative in nature:

NUREG-1433 Footnote	BFN Footnote	Disposition
Table 3.3.5.1-1 Footnote (a) (old)	Table 3.3.5.1-1 Footnote (a) (old)	The deleted footnote in NUREG-1433 references LCO 3.5.2, which is not included in the analogous BFN footnote. However, the meaning is identical.
Table 3.3.5.1-1 Footnote (a) (new) and subsequent footnote re-designations	Table 3.3.5.1-1 Footnote (a) (new)	TSTF-542 deletes this footnote and re-designates the subsequent footnotes. TVA has opted to insert "Deleted" in Footnote (a) and maintain the subsequent footnote designations to minimize procedural impacts.
Table 3.3.6.1-1 Footnote (c) (old)	Table 3.3.6.1-1 Footnote (b) (old)	The deleted BFN footnote differs from NUREG-1433 due to differences in the isolation logic for the RHR shutdown cooling isolation valves, and is immaterial to the footnote's deletion on this table. Because a Footnote (c) exists for this table the text for Footnote (b) is replaced with "Deleted.".

2.2.1.4 Per TSTF-542, TS Table 3.3.5.2-1 Function 1.a [Core Spray System Reactor Steam Dome Pressure – Low (Injection Permissive)] and Function 2.a [Low Pressure Coolant Injection Reactor Steam Dome Pressure – Low (Injection Permissive)] are required in Modes 4 and 5. Prior to TSTF-542, the analogous Functions 1.c and 2.c in TS Table 3.3.5.1-1 had a Mode 4 and 5 applicability modified by a footnote specifying that these functions were only required when the associated ECCS were required to be Operable per LCO 3.5.2, "ECCS Shutdown." The footnote was inadvertently omitted from Table 3.3.5.2-1 Functions 1.a and 2.a in TSTF-542 (although the Bases for these new functions specify that operability is only required when supporting manual initiation for LCO 3.5.2). Without the footnote, the Reactor Steam Dome Pressure – Low functions are required to be operable for all low

pressure ECCS subsystems, regardless of whether they are credited for meeting TS 3.5.2, "Reactor Pressure Vessel Water Inventory Control." Requiring the functions for all ECCS subsystems is unnecessary. In Modes 4 and 5 with the reactor steam dome at atmospheric pressure, these functions only serve to satisfy permissives to open low pressure ECCS injection valves for manual actuation. Accordingly, an administrative variation is proposed to affix Footnote (a) ("Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, 'Reactor Pressure Vessel Water Inventory Control'") to the Required Channels Per Function (RCPF) column of Functions 1.a and 2.a of TS Table 3.3.5.2-1.

2.2.1.5 TSTF-542 removes Footnote (a), "During operations with a potential for draining the reactor vessel," from Table 3.3.7.1-1, Function 4, "Refueling Floor Area Radiation – High." The BFN design does not have refueling floor area radiation monitors that actuate the CREV System. Instead, the BFN design has Function 3, "Reactor Zone Exhaust Radiation – High," and Function 4, "Refueling Floor Exhaust Radiation – High," which provide the CREV System actuation with the identical footnote. The justification in TSTF-542 remains valid for removing the footnote from these alternate BFN functions, so this is considered to be administrative in nature.

2.2.1.6 In NUREG-1433, LCO 3.5.2 is modified by a Note regarding the Low Pressure Coolant Injection subsystem being considered OPERABLE during alignment and operation for decay heat removal. This Note is modified by TSTF-542 to change "one" to "a." In the BFN TS, this Note modifies new SR 3.5.2.4 (rather than the LCO). The verbiage is the same between the BFN TS and NUREG-1433, but the location of the Note in NUREG-1433 was changed from the SR to the LCO as a result of TSTF-416. To maintain consistency with the presentation in TSTF-542, the SR 3.5.2.4 note is being deleted from the SR and moved to LCO 3.5.2 at the LCO level. This variation is administrative and does not affect the applicability of TSTF-542 to the BFN TS.

2.2.1.7 TSTF-542 establishes new SR 3.5.2.6 as: "Operate the required ECCS injection/spray subsystem through the recirculation line for ≥ 10 minutes." The term "recirculation line" is replaced with "test return line" in new SR 3.5.2.5. This is the proper BFN terminology, and is changed to avoid confusion with the Reactor Recirculation piping.

2.2.1.8 BFN TS 3.6.1.3 contains the following Applicability in addition to Modes 1, 2, and 3:

> When associated instrumentation is required to be Operable per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

However, with the removal of Modes 4 and 5 Applicability for Table 3.3.6.1-1 Function 6.b, "Shutdown Cooling System Isolation – Reactor Vessel Water Level – Low, Level 3," this table no longer contains any other Applicable Modes designated besides Modes 1, 2, or 3. Accordingly, the TS 3.6.1.3 Applicability is revised to delete the above sentence referencing LCO 3.3.6.1. Additionally, since the only Applicability for TS 3.6.1.3 will be Modes 1, 2, and 3, it is not necessary to reiterate these Modes in Actions Note 4 and Condition E, and so references to Modes 1, 2, and 3 are being deleted.

2.2.1.9 BFN TS 3.6.1.3 Condition F states:

> Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be Operable during Mode 4 or 5.

This Condition is analogous to STS 3.6.1.3 Condition H, as revised by – TSTF-542 (except without the reference to OPDRVs). However, with the removal of Modes 4 and 5 Applicability for Table 3.3.6.1-1 Function 6.b, "Shutdown Cooling System Isolation – Reactor Vessel Water Level – Low, Level 3," there are no longer any PCIV operability requirements when in Modes 4 or 5. Accordingly, the entire Condition, Required Action, and Completion Time are being removed (versus just the references to OPDRVs in TSTF-542), as this is no longer applicable.

2.2.1.10 As a result of incorporating TSTF-542 changes, BFN TS 3.6.4.1 will only have Applicability in Modes 1, 2, and 3. Accordingly, in Condition A, since it is no longer necessary to specify "in Modes 1, 2, or 3," this phrase is being deleted.

2.2.1.11 BFN TS 3.6.4.1 Condition C states:

> Secondary containment inoperable during OPDRVs.

This Condition is analogous to STS 3.6.4.1 Condition C, as revised by TSTF-542. However, the BFN TS does not contain the requirements related to the movement of irradiated fuel in the LCO Applicability or in this Condition. Accordingly, the entire Condition, Required Action, and Completion Time are being removed (versus just the references to OPDRVs in TSTF-542), as this is no longer applicable.

2.2.1.12 As a result of incorporating TSTF-542 changes, BFN TS 3.6.4.2 will only have Applicability in Modes 1, 2, and 3. Accordingly, in Condition C, since it is no longer necessary to specify "in Modes 1, 2, or 3," this phrase is being deleted.

2.2.1.13 BFN TS 3.6.4.2 Condition D states:

> Required Action and associated Completion Time of Condition A or B not met during OPDRVs.

This Condition is analogous to STS 3.6.4.2 Condition D, as revised by TSTF-542. However, the BFN TS does not contain the requirements related to the movement of irradiated fuel in the LCO Applicability or in this Condition. Accordingly, the entire Condition, Required Action, and Completion Time are being removed (versus just the references to OPDRVs in TSTF-542), as this is no longer applicable.

2.2.1.14 As a result of incorporating TSTF-542 changes, BFN TS 3.6.4.3 will only have Applicability in Modes 1, 2, and 3. Accordingly, in Condition B and Condition C (new), since it is no longer necessary to specify "in Modes 1, 2, or 3," this phrase is being deleted.

2.2.1.15 BFN TS 3.6.4.3 Condition C states:

> Required Action and associated Completion Time of Condition A not met during OPDRVs.

This Condition is analogous to STS 3.6.4.3 Condition C, as revised by TSTF-542. However, the BFN TS does not contain the requirements related to the movement of irradiated fuel in the LCO Applicability or in this Condition. Accordingly, the entire Condition, Required Action, and Completion Time are being removed (versus just the text related to OPDRVs in TSTF-542), as this is no longer applicable. As a result, the subsequent Condition D is being re-designated as Condition C.

2.2.1.16 BFN TS 3.6.4.3 Condition E states:

> Two or three SGT subsystems inoperable during OPDRVs.

This Condition is analogous to STS 3.6.4.3 Condition E, as revised by TSTF-542. However, the BFN TS does not contain the requirements related to the movement of irradiated fuel in the LCO Applicability or in this Condition. Accordingly, the entire Condition, Required Action, and Completion Time are being removed (versus just the text related to OPDRVs in TSTF-542), as this is no longer applicable.

2.2.1.17 As a result of incorporating TSTF-542 changes, BFN TS 3.7.3 will only have Applicability in Modes 1, 2, and 3. Accordingly, in Conditions B and E and Condition F (new), since it is no longer necessary to specify "in Modes 1, 2, or 3," this phrase is being deleted.

2.2.1.18 BFN TS 3.7.3 Condition F states:

> Required Action and associated Completion Time of Condition A or D not met during OPDRVs.

and

BFN TS 3.7.3 Condition H states:

> Required Action and associated Completion Time of Condition C not met during OPDRVs.
>
> <u>OR</u>
>
> Two CREV subsystems inoperable during OPDRVs for reasons other than Condition C.
>
> <u>OR</u>
>
> One or more CREV subsystems inoperable due to an inoperable CRE Boundary during OPDRVs.

These Conditions are collectively analogous to STS 3.7.4 Conditions D and F, which are revised by TSTF-542. However, the BFN TS do not contain the requirements related to the movement of irradiated fuel in the LCO Applicability or in these Conditions. Accordingly, the entire Condition F and H, Required Actions, and Completion Times are being removed (versus just the references to OPDRVs in TSTF-542), as they are no longer applicable. As a result, Condition G (which follows) is re-designated as Condition F.

2.2.1.19 BFN TS 3.7.4 Condition D states:

> 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.

This Condition is analogous to STS 3.7.4 Condition D and E, as revised by TSTF-542 (although without the requirements related to Core Alterations). The BFN Condition D removes the reference to OPDRVs consistent with the TSTF-542 changes to STS Condition D and E. BFN Required Action D.2.3 regarding suspending OPDRVs and its Completion Time are deleted consistent with TSTF-542 for Required Action D.2.2 and E.2.

2.2.1.20 BFN TS 3.8.2 Condition B contains four Required Actions designated B.1.1, B.1.2, B.1.3, and B.1.4. Required Action B.1.3 is being deleted, consistent with the deletion of Required Action B.3 in TSTF-542. However, because there is no existing "B.2" Required Action, the resulting Required Actions are re-designated as B.1, B.2, and B.3, consistent with the TSTF-GG-05-01, Revision 1, "Writer's Guide for Plant-Specific Improved Technical Specifications." (ADAMS ML070660229)

2.2.1.21 The following administrative changes are made:

- TVA is taking this opportunity to rebaseline the BFN Units 1/2/3 TS Tables of Contents (TOC) contained in the TS of record. This includes:

  1) Adding TS 3.9.9, "Decay Time," that was inadvertently not included in the BFN Unit 1/2/3 TOC by Amendments 251/290/249 respectively.
  2) Revising the List of Figures for BFN Unit 2/3 page numbers for Figure 3.4.9-1, and entering a new line item was entered for Figure 3.4.9-2. These were the result of License Amendments 314/278, for BFN Unit 2/3 respectively.
  3) Deleting Figure 3.7.1-1 from the BFN Unit 2/3 List of Figures as a result of License Amendments 323/283, respectively.
  4) To promote consistency of content, the List of Tables and List of Figures is added to the BFN Unit 1 TOC, and the List of Tables is added to the BFN Unit 2 TOC.
  5) BFN Unit 1/2 TOC pages are re-issued in Attachments 5 and 6 due to a previous conversion to a newer word processing software version.

- Changes to the Drain Time definition formatting are made in conformance with BFN TS numbering convention

- A typographical correction is made to Paragraph b.3 of the Drain Time definition: "...who <u>is</u> in continuous communication..."

- The "1" designation is removed from the Note in TS 3.3.5.1 Required Action B.1 which was inadvertently retained in the traveler.

- TS 3.3.5.2 Required Action E.1 defines first use of "ECCS" in accordance with the TSTF-GG-05-01.

- TS Table 3.3.5.2-1 Function 3 is defined as "Shutdown Cooling System Isolation, consistent with the analogous function in Table 3.3.6.1-1 from which it was derived.

- The comma is removed from the TS 3.6.4.1, 3.6.4.2, 3.6.4.3, and 3.7.3 Applicability after Mode 3, and from TS 3.7.4 Applicability after Core Alterations, because there is no subsequent line any longer.

- For TS 3.6.1.3, 3.6.4.1, 3.6.4.2, 3.6.4.3, 3.7.3, 3.8.5, necessary formatting changes are made such as text relocations to preceding pages, designations of intentionally blank pages, page deletions, and insertions of double underlines that are not specifically annotated in TSTF-542.

- Consistent with the TSTF-GG-05-01, periods (.) have been added at the end of the TS Applicability entries for TS 3.5.2, 3.6.4.1, 3.6.4.3, 3.7.3, and 3.7.4.

2.2.2 Technical Variations

2.2.2.1 The BFN TS contain certain requirements not included in the STS that were not addressed by TSTF-542, but are affected by the proposed change. The following table dispositions these TS changes.

BFN TS Number	**BFN TS Description**	**Disposition**
Table 3.3.5.1-1 Function 1.e	Core Spray Pump Start – Time Delay Relay during Modes 4 and 5	NUREG-1433 does not have a requirement for this function in Modes 4 and 5 and so was not addressed in TSTF-542. However, this Function is similar to Function 2.f for LPCI that was deleted by TSTF-542, and not relocated to new Table 3.3.5.2 because ECCS auto-start on the diesel generators is no longer required. Accordingly, it is appropriate to delete this function for CS.

2.2.2.2 There are STS requirements on which TSTF-542 is based, related to "manual initiation," that do not appear in the BFN TS. STS Table 3.3.5.1-1 contains Functions 1.e and 2.h, Manual Initiation, for CS and LPCI, respectively. The "manual initiation" logic does not exist in the BFN design. Therefore, Table 3.3.5.2-1 Functions 1.c and 2.c, as well as the related TSTF-542 SR 3.3.5.2.3 and SR 3.5.2.8, do not apply to BFN.

As an alternative, TVA proposes that TS 3.5.2 include SR 3.5.2.7 to verify that the BFN required ECCS injection/spray subsystem can be manually operated.

The manual operation of the required ECCS injection/spray subsystem for the control of reactor cavity or reactor pressure vessel inventory is a relatively simple evolution and involves the manipulation of a small number of components. These subsystem alignments can be performed by licensed operators from the Main Control Room.

This alternative is justified by the fact that a draining event is a slow evolution when compared to a design basis loss of coolant accident, which is assumed to occur at full power. Therefore, there is adequate time to take manual actions (i.e., hours versus minutes). Adequate time to take action is assured because the proposed TS 3.5.2, Condition E, prohibits plant conditions that result in drain times that are less than one hour. Therefore, there is sufficient time for the licensed operators to take manual action to stop an unanticipated draining event, and to manually start an ECCS injection/spray subsystem or the additional method of water injection.

Because the ECCS injection/spray subsystem can be placed in service using manual means in a short period of time (i.e., within the time frames assumed in the development of TSTF-542), using controls and indications that are readily available in the Main Control Room, manual operation of the required subsystem would be an equivalent alternative to system initiation via manual initiation logic.

Current SR 3.5.1.6 and SR 3.5.2.4 require manually operating the ECCS injection/spray pumps to verify each required ECCS injection/spray pump develops the specified flow rate against a system head corresponding to the specified reactor pressure at a frequency specified by the Inservice Testing (IST) Program. The IST Program requires the ECCS injection/spray subsystems motor operated injection valves, minimum flow valves and test flow path valves be cycled to demonstrate operability at a frequency specified by the IST Program. The manual operation of the ECCS injection/spray subsystem to demonstrate operability required by the proposed SR 3.5.2.7 is equivalent to the testing that is presently required to be performed on the ECCS injection/spray subsystems.

This variation was also proposed by Dresden Nuclear Power Station, Brunswick Steam Electric Plant, Cooper Nuclear Station, James A. FitzPatrick Nuclear Power Plant, and Edwin I. Hatch Nuclear Plant.

2.2.2.3 TSTF-542 Table 3.3.5.2-1 Function 1.d. [Core Spray Pump Discharge Flow – Low (Bypass)] specifies the inclusion of SR 3.3.5.1.1, "Perform Channel Check." BFN does not have the capability to perform a Channel Check for analogous Table 3.3.5.2-1, Function 1.b., and this is not a current requirement in BFN TS Table 3.3.5.1-1. Accordingly, no Channel Check is proposed for this function. This variation was also proposed by Cooper Nuclear Station, Duane Arnold Energy Center, and Dresden Nuclear Power Station.

2.2.2.4 BFN TS Table 3.3.5.1-1 Function 1.c [Core Spray System Reactor Steam Dome Pressure – Low (Injection Permissive and ECCS Initiation)] specifies four RCPF with two per trip system. Each trip system correlates to a single CS injection valve, and has a one-out of-two logic. As described in the Bases for this function, four channels are required to ensure that no single instrument failure can preclude ECCS initiation. However, as described in Section 3.3 of the TSTF-542 Safety Evaluation, only one ECCS injection/ spray subsystem is required to be operable in Modes 4 and 5, as no additional single failure is assumed. In developing the new BFN Table 3.3.5.2-1, that principle is carried forward in requiring only a single channel per CS subsystem be operable for Function 1.a.

2.2.2.5 BFN TS Table 3.3.5.1-1 Function 2.c (LPCI System Reactor Steam Dome Pressure – Low (Injection Permissive and ECCS Initiation) specifies four RCPF. This

correlates to two channels in Trip System A (powered by Division I) and two channels in Trip System B (powered by Division II) which are configured in series with a cross-connect between the divisional output contacts. Since outage planning and scheduling is typically based around "protected" Divisions, it follows that either Trip System A or B may be unavailable. Notwithstanding, trip capability is maintained by the other trip system in a two-out-of-two trip logic for each LPCI Injection Valve. As described in Section 3.3 of the TSTF-542 Safety Evaluation, only one ECCS injection/spray subsystem is required to be operable in Modes 4 and 5, as no additional single failure is assumed. Consistent with single failure not being applicable for RPV Water Inventory Control, only two channels in one trip system are required to be operable for Function 2.a.

2.2.2.6 STS Table 3.3.5.1-1 Function 2.g (LPCI Pump Discharge Flow – Low, Bypass) does not exist in the BFN TS. This is because the RHR minimum flow valve is open when in the standby configuration, and is sized such that LPCI subsystem remains operable even with the valve fully open. Accordingly, the analogous STS Table 3.3.5.2-1 Function 2.b (LPCI Pump Discharge Flow – Low, Bypass) has not been added to new BFN Table 3.3.5.2-1.

2.2.2.7 STS Table 3.3.6.1-1 Function 6.b (Shutdown Cooling System Isolation – Reactor Vessel Water Level – Low, Level 3) designates two required channels in one trip system in Modes 4 and 5. This was transferred to new Table 3.3.5.2-1 Function 3.a with two required channels in one trip system. As described in the STS 3.3.6.1 Bases Background for Function 6, four reactor water level channels input to two two-out-of-two trip systems, with each of the two trip systems associated with one of the two valves on each shutdown cooling penetration. Thus, two channels are required in one trip system to ensure either the inboard or outboard isolation valve closes on a valid signal. The logic design for BFN is different from the NUREG-1433 reference plant. The BFN logic is four channels arranged with two channels in Trip System A and two channels in Trip System B. They are arranged in a one-out-of-two-taken-twice logic, which isolates both the inboard and outboard isolation valves. Thus, for new Table 3.3.5.2-1 Function 3.a, one required channel per trip system is specified. This is consistent with the existing requirements in Table 3.3.6.1-1 Footnote (b). The closure logic is the same for the RWCU isolation valves. Therefore, new Table 3.3.5.2-1 Function 4.a similarly specifies one required channel per trip system.

2.2.2.8 BFN is designed with three subsystems of SGT servicing all three units. A minimum of two subsystems of SGT are required per the TS 3.6.4.3 Bases to keep the three Reactor Building Zones and the common Refueling Zone at the required negative pressure. In contrast, the reference plant for NUREG-1433 requires only a single SGTS subsystem to maintain secondary containment at negative pressure, as described in the Bases to STS 3.6.4.3. Accordingly, a technical variation is taken for new TS 3.5.2 Required Action C.3 to require verification of two SGT subsystems are capable of being placed in operation in less than the Drain Time, instead of a single SGT subsystem. Similarly, new Required Action D.4 will initiate action to establish two SGT subsystems are capable of being placed in operation, instead of a single SGT subsystem.

2.2.2.9 TSTF-542 TS 3.5.2 Required Actions C.1, C.2, C.3, D.2, D.3, and D.4 are premised on the assumption that secondary containment has been relaxed. BFN Units 1, 2, and 3 have a common refueling floor and shared SGT subsystems. This results in

secondary containment rarely being relaxed; i.e. secondary containment, the SCIVs, and the SGT System are maintained Operable per an online Unit's TS. Accordingly, a technical variation is taken for Required Action D.3 to allow crediting automatic isolation of each secondary containment penetration flow path as an alternative to a manual isolation from the control room. A statement is also made in the TS Bases that Required Actions C.1, C.2, C.3, D.2, D.3, and D.4 are considered to be met when secondary containment, secondary containment isolation valves, and the SGT system are Operable.

2.2.2.10 BFN Units 1 and 2 SR 3.8.2.1 require that for the Unit 1 and 2 AC sources required to be Operable, the SRs of Specification 3.8.1 are applicable. This SR is modified by a Note that excludes certain SRs from the AC Sources – Operating TS. As stated in the SR 3.8.2.1 Bases, it is the intent that these excluded SRs must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be Operable. However, with the adoption of TSTF-542, there is no longer a need for a diesel generator auto start on an accident signal. Accordingly, SR 3.8.1.9, "Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal...," may be removed from the SR 3.8.2.1 Note and listed as an exception to this SR. Similarly, SR 3.8.1.6, "Verify on an actual or simulated accident signal each DG auto-starts from standby condition," is no longer necessary and may be included as an exception to SR 3.8.2.1. Analogous changes are made to the BFN Unit 3 SR 3.8.2.1 related to the Unit 3 AC sources required to be Operable.

2.3 Site-Specific Justifications

2.3.1 Surveillance Frequencies

TSTF-542 contains several new SRs with Frequencies that are designated as site specific. A justification for these values is provided in the table below.

BFN SR	BFN Frequency	Disposition
SR 3.3.5.2.1 – Perform Channel Check	24 hours	This Frequency is consistent with the current licensing basis for these Functions formerly performed as part of TS 3.3.5.1 and 3.3.6.1.
SR 3.3.5.2.2 – Perform Channel Functional Test	92 days	This Frequency is consistent with the current licensing basis for these Functions formerly performed as part of TS 3.3.5.1 and 3.3.6.1.
SR 3.5.2.1 – Verify Drain Time ≥ 36 hours	12 hours	The Frequency is selected based on the fact that numerous indications of changes in RPV level are available to the operator, as noted in Section 3.2 of the TSTF-542 Safety Evaluation.
SR 3.5.2.5 – Operate the required ECCS injection/ spray subsystem through the test return line for ≥ 10 minutes.	92 days	The Frequency is consistent with other at-power testing, as noted in Section 3.2 of the TSTF-542 Safety Evaluation.

BFN SR	BFN Frequency	Disposition
SR 3.5.2.6 – Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	24 months	The [18] month Frequency specified in TSTF-542 correlates to performance once every refueling cycle. BFN has a 24 month refueling cycle.

2.3.2 Table 3.3.5.2-1 Entries

New Table 3.3.5.2-1 contains site-specific values for the RCPF and Allowable Value (AV) columns. A justification for these values is provided in the table below.

BFN Table 3.3.5.2-1 Function	BFN Values	TSTF-542 Values	Disposition
1.a - Core Spray System Reactor Steam Dome Pressure – Low (Injection Permissive)	RCPF- 1 per subsystem AV - ≤ 465 psig	RCPF – [4] AV – [≤ 500] psig	As described in Section 2.2.2.4 As transcribed from the AV from Table 3.3.5.1-1 Function 1.c (per TSTF-542, only the upper AV is required)
1.b - Core Spray Pump Discharge Flow – Low (Bypass)	RCPF- 1 per subsystem AV - ≥ 1647 gpm and ≤ 2910 gpm	RCPF – [1 per pump] AV – Not specified	BFN has a single min-flow valve for each two-pump CS subsystem As transcribed from the AV from Table 3.3.5.1-1 Function 1.d
2.a - LPCI System Reactor Steam Dome Pressure – Low (Injection Permissive)	RCPF- 2 in one trip system AV - ≤ 465 psig	RCPF – [4] AV - [≤ 500] psig	As described in Section 2.2.2.5 As transcribed from the AV from Table 3.3.5.1-1 Function 2.c (per TSTF-542, only the upper AV is required)
3.a – Shutdown Cooling System Isolation – Reactor Vessel Water Level – Low, Level 3	RCPF- 1 per trip system AV - ≥ 528 inches above vessel zero	RCPF – [2 in one trip system] AV - ≥ [10] inches	As described in Section 2.2.2.7 As transcribed from the AV from Table 3.3.6.1-1 Function 6.b

BFN Table 3.3.5.2-1 Function	BFN Values	TSTF-542 Values	Disposition
4.a – RWCU System Isolation – Reactor Vessel Water Level – Low, Level 3	RCPF- 1 per trip system	RCPF – [2 in one trip system]	As described in Section 2.2.2.7
	AV - ≥ 528 inches above vessel zero	AV - ≥ [-47] inches	As transcribed from the AV from Table 3.3.6.1-1 Function 5.h for Modes 1, 2, and 3. Per Section 2.3.3.2.2.5 of the TSTF-542 Safety Evaluation, the AV is unchanged for this new function.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Analysis

Tennessee Valley Authority, (TVA) requests adoption of Technical Specification Task Force (TSTF)-542 "Reactor Pressure Vessel Water Inventory Control," which is an approved change to the Standard Technical Specifications, into the Browns Ferry Nuclear Plant Units 1, 2, and 3, Technical Specifications (TS). The proposed amendment replaces the existing requirements in the TS related to "operations with a potential for draining the reactor vessel" (OPDRVs) with new requirements on Reactor Pressure Vessel Water Inventory Control (RPV WIC) to protect Safety Limit 2.1.1.3. Safety Limit 2.1.1.3 requires reactor vessel water level to be greater than the top of active irradiated fuel.

TVA has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

   Response: No

   The proposed change replaces existing TS requirements related to OPDRVs with new requirements on RPV WIC that will protect Safety Limit 2.1.1.3. Draining of RPV water inventory in Mode 4 (i.e., cold shutdown) and Mode 5 (i.e., refueling) is not an accident previously evaluated and, therefore, replacing the existing TS controls to prevent or mitigate such an event with a new set of controls has no effect on any accident previously evaluated. RPV water inventory control in Mode 4 or Mode 5 is not an initiator of any accident previously evaluated. The existing OPDRV controls or the proposed RPV WIC controls are not mitigating actions assumed in any accident previously evaluated.

   The proposed change reduces the probability of an unexpected draining event (which is not a previously evaluated accident) by imposing new requirements on the limiting time in which an unexpected draining event could result in the reactor vessel water level dropping to the top of the active fuel (TAF). These controls require cognizance of the plant configuration and control of configurations with unacceptably short drain times.

These requirements reduce the probability of an unexpected draining event. The current TS requirements are only mitigating actions and impose no requirements that reduce the probability of an unexpected draining event.

The proposed change reduces the consequences of an unexpected draining event (which is not a previously evaluated accident) by requiring an Emergency Core Cooling System (ECCS) subsystem to be operable at all times in Modes 4 and 5. The current TS requirements do not require any water injection systems, ECCS or otherwise, to be Operable in certain conditions in Mode 5. The change in requirement from two ECCS subsystems to one ECCS subsystem in Modes 4 and 5 does not significantly affect the consequences of an unexpected draining event because the proposed Required Actions ensure equipment is available within the limiting drain time that is as capable of mitigating the event as the current requirements. The proposed controls provide escalating compensatory measures to be established as calculated drain times decrease, such as verification of a second method of water injection and additional confirmations that containment and/or filtration would be available if needed.

The proposed change reduces or eliminates some requirements that were determined to be unnecessary to manage the consequences of an unexpected draining event, such as automatic initiation of an ECCS subsystem and control room ventilation. These changes do not affect the consequences of any accident previously evaluated because a draining event in Modes 4 and 5 is not a previously evaluated accident and the requirements are not needed to adequately respond to a draining event.

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

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

Response: No

The proposed change replaces existing TS requirements related to OPDRVs with new requirements on RPV WIC that will protect Safety Limit 2.1.1.3. The proposed change will not alter the design function of the equipment involved. Under the proposed change, some systems that are currently required to be operable during OPDRVs would be required to be available within the limiting drain time or to be in service depending on the limiting drain time. Should those systems be unable to be placed into service, the consequences are no different than if those systems were unable to perform their function under the current TS requirements.

The event of concern under the current requirements and the proposed change is an unexpected draining event. The proposed change does not create new failure mechanisms, malfunctions, or accident initiators that would cause a draining event or a new or different kind of accident not previously evaluated or included in the design and licensing bases.

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

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

Response: No

The proposed change replaces existing TS requirements related to OPDRVs with new requirements on RPV WIC. The current requirements do not have a stated safety basis and no margin of safety is established in the licensing basis. The safety basis for the new requirements is to protect Safety Limit 2.1.1.3. New requirements are added to determine the limiting time in which the RPV water inventory could drain to the top of the fuel in the reactor vessel should an unexpected draining event occur. Plant configurations that could result in lowering the RPV water level to the TAF within one hour are now prohibited. New escalating compensatory measures based on the limiting drain time replace the current controls. The proposed TS establish a safety margin by providing defense-in-depth to ensure that the Safety Limit is protected and to protect the public health and safety. While some less restrictive requirements are proposed for plant configurations with long calculated drain times, the overall effect of the change is to improve plant safety and to add safety margin.

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

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

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 20, or 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.

Attachment 2 to CNL-19-010

Proposed Technical Specification Changes (Unit 1 Mark-up)
(55 total pages)

TABLE OF CONTENTS

BROWNS FERRY NUCLEAR PLANT
TECHNCAL SPECIFICATIONS (REQUIREMENTS)

Use this header for each TOC page

Remove underline

(continued)

Scroll to next page

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control 3.3-47a

3

Reactor Pressure Vessel (RPV) Water Inventory Control

Scroll to next page

Scroll to next page

Scroll to new Page v

LIST OF TABLES

This is a new page

LIST OF FIGURES

1.1 Definitions (continued)

CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
Insert 1	
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

(continued)

Insert 1

DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

a. The water inventory above the TAF is divided by the limiting drain rate;

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

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

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

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

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

d. No additional draining events occur; and

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

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

ACTIONS (continued)

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1	------------NOTES------------ ~~1. Only applicable in MODES 1, 2, and 3.~~ ~~2.~~ Only applicable for Functions 1.c, 1.e, 2.c, 2.d, and 2.f. ------------------------------------	
		Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for features in both divisions
	AND		
	C.2	Restore channel to OPERABLE status.	24 hours
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1	------------NOTE------------ Only applicable if HPCI pump suction is not aligned to the suppression pool. ------------------------------------	
		Declare HPCI System inoperable.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1	-----------NOTES----------- ~~1. Only applicable in MODES 1, 2, and 3.~~ ~~2.~~ Only applicable for Function 1.d. ----------------------------------	
		Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	<u>AND</u>		
	E.2	Restore channel to OPERABLE status.	7 days

(continued)

Table 3.3.5.1-1 (page 1 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low Low, Level 1(e)	1,2,3, ~~4(a), 5(a)~~	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure - High(e)	1,2,3	4(b)	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive and ECCS Initiation)(e)	1,2,3	4(b) 2 per trip system	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig
	~~4(a), 5(a)~~	~~4~~ ~~2 per trip system~~	~~B~~	~~SR 3.3.5.1.2~~ ~~SR 3.3.5.1.4~~ ~~SR 3.3.5.1.6~~	~~≥ 435 psig and ≤ 465 psig~~
d. Core Spray Pump Discharge Flow - Low (Bypass)	1,2,3, ~~4(a), 5(a)~~	2 1 per subsystem	E	SR 3.3.5.1.2 SR 3.3.5.1.5	≥ 1647 gpm and ≤ 2910 gpm
e. Core Spray Pump Start - Time Delay Relay					
Pumps A,B,C,D (with diesel power)	1,2,3, ~~4(a), 5(a)~~	4 1 per pump	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump A (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds

(continued)

Remove comma

(a) ~~When associated subsystem(s) are required to be OPERABLE.~~ Deleted.

(b) Channels affect Common Accident Signal Logic. Refer to LCO 3.8.1, "AC Sources - Operating."

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System (continued)					
e. Core Spray Pump Start - Time Delay Relay (continued)					
Pump C (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level - Low Low Low, Level 1(e)	1,2,3, ~~4(a), 5(a)~~	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure - High(e)	1,2,3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive and ECCS Initiation)(e)	1,2,3	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig
	~~4(a), 5(a)~~	~~4~~	~~B~~	~~SR 3.3.5.1.2~~ ~~SR 3.3.5.1.4~~ ~~SR 3.3.5.1.6~~	~~≥ 435 psig and ≤ 465 psig~~

Remove comma

(continued)

(a) ~~When associated subsystem(s) are required to be OPERABLE.~~ Deleted.

(b) Deleted.

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
d. Reactor Steam Dome Pressure - Low (Recirculation Discharge Valve Permissive)[e]	1[c],2[c], 3[c]	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 215 psig and ≤ 245 psig
e. Reactor Vessel Water Level - Level 0	1,2,3	2 1 per subsystem	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 312 5/16 inches above vessel zero
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay					
Pump A,B,C,D (with diesel power)	1,2,3, ~~4[a], 5[a]~~	4	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump A (with normal power)	1,2,3, ~~4[a], 5[a]~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3, ~~4[a], 5[a]~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump C (with normal power)	1,2,3, ~~4[a], 5[a]~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3, ~~4[a], 5[a]~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds

Remove comma

(continued)

(a) ~~When the associated subsystem(s) are required to be OPERABLE.~~ Deleted.

(c) With associated recirculation pump discharge valve open.

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

This is a new page

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

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

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more channels inoperable.	A.1	Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1	Declare associated penetration flow path(s) incapable of automatic isolation.	Immediately
	<u>AND</u>		
	B.2	Calculate DRAIN TIME.	Immediately
C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	C.1	Place channel in trip.	1 hour
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	D.1	Restore channel to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met.	E.1	Declare associated low pressure Emergency Core Cooling System (ECCS) injection/spray subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days

This is a new page

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	1 per subsystem[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
b. Core Spray Pump Discharge Flow - Low (Bypass)	4, 5	1 per subsystem[(a)]	D	SR 3.3.5.2.2	≥ 1647 gpm and ≤ 2910 gpm
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	2 in one trip system[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
3. Shutdown Cooling System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "Reactor Pressure Vessel Water Inventory Control."

(b) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.5.~~2~~ Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.~~2~~ The RCIC System instrumentation for each Function in Table 3.3.5.~~2~~-1 shall be OPERABLE.

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

3

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more channels inoperable.	A.1	Enter the Condition referenced in Table 3.3.5.~~2~~-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.~~2~~-1.	B.1	Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	<u>AND</u>		
	B.2	Place channel in trip.	24 hours

(continued)

3

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.~~2~~-1.	C.1	Restore channel to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition B or C not met.	D.1	Declare RCIC System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.5~~.2~~-1 to determine which SRs apply for each RCIC Function.

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

SURVEILLANCE		FREQUENCY
SR 3.3.5~~.2~~.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5~~.2~~.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5~~.2~~.3	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5~~.2~~.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

Table 3.3.5.~~2-~~1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2[(a)]	4	B	SR 3.3.5.~~2.~~1 SR 3.3.5.~~2.~~2 SR 3.3.5.~~2.~~3 SR 3.3.5.~~2.~~4	≥ 470 inches above vessel zero
2. Reactor Vessel Water Level - High, Level 8	2	C	SR 3.3.5.~~2.~~1 SR 3.3.5.~~2.~~2 SR 3.3.5.~~2.~~3 SR 3.3.5.~~2.~~4	≤ 583 inches above vessel zero

(a) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1	Declare standby liquid control system (SLC) inoperable.	1 hour
	OR		
	H.2	Isolate the Reactor Water Cleanup System.	1 hour
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1	Initiate action to restore channel to OPERABLE status.	Immediately
	~~OR~~		
	~~I.2~~	~~Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System.~~	~~Immediately~~

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Main Steam Valve Vault Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 201°F
b. Pipe Trench Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 135°F
c. Pump Room A Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
d. Pump Room B Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
e. Heat Exchanger Room Area (West Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 170°F
f. Heat Exchanger Room Area (East Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 143°F
g. SLC System Initiation	1,2,3	1(a)	H	SR 3.3.6.1.6	NA
h. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 115 psig
b. Reactor Vessel Water Level - Low, Level 3	3~~,4,5~~	2~~(b)~~	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
c. Drywell Pressure - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 2.5 psig

(a) One SLC System Initiation signal provides logic input to close both RWCU valves.
(b) ~~Only one channel per trip system required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained.~~

Deleted.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3, ~~(a)~~	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3, ~~(a)~~		SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3, ~~(a)~~	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr

Remove comma

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

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Ventilation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3~~,(a)~~	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	B	SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3 ~~(a)~~	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3, ~~(a)~~	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
5. Control Room Air Supply Duct Radiation - High	1,2,3, ~~(a)~~	1	D	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 270 cpm above background

Remove comma

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

, RPV WATER INVENTORY CONTROL,

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. <u>OR</u> One low pressure coolant injection (LPCI) pump in both LPCI subsystems inoperable.	A.1	Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.2 ~~ECCS - Shutdown~~ Reactor Pressure Vessel (RPV) Water Inventory Control

LCO 3.5.2 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

AND

~~Two~~ One low pressure ECCS injection/spray subsystem~~s~~ shall be OPERABLE.

Relocation from SR 3.5.2.3

APPLICABILITY: MODE~~S~~ 4, and
~~MODE~~ 5~~, except with the spent fuel storage pool gates removed and water level ≥ 22 ft over the top of the reactor pressure vessel flange~~.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~One~~ Required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 ~~Initiate action to suspend OPDRVs.~~ Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately
~~C. Two required ECCS injection/spray subsystems inoperable.~~	~~C.1 Initiate action to suspend OPDRVs.~~ ~~AND~~ ~~C.2 Restore one ECCS injection/spray subsystem to OPERABLE status.~~	~~Immediately~~ ~~4 hours~~

Insert 1

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~D. Required Action C.2 and associated Completion Time not met.~~	~~D.1~~	~~Initiate action to restore secondary containment to OPERABLE status.~~	~~Immediately~~
	~~AND~~		
	~~D.2~~	~~Initiate action to restore two standby gas treatment subsystems to OPERABLE status.~~	~~Immediately~~
	~~AND~~		
	~~D.3~~	~~Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.~~	~~Immediately~~

Insert 2

Insert 3

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.2.~~1~~ 2	Verify, for ~~each~~ the required ECCS injection/spray subsystem, the suppression pool water level is ≥ -6.25 inches with or -7.25 inches without differential pressure control.	12 hours
SR 3.5.2.~~2~~ 3	Verify, for ~~each~~ the required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.2.~~3~~ 4	-------------------NOTE------------------- ~~One LPCI~~ A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable. -- Relocate to LCO	
	Verify ~~each~~ for the required ECCS injection/spray subsystem each 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.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.5.2.4~~	~~Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure.~~ Insert 4 ~~SYSTEM~~ / ~~FLOW RATE~~ / ~~NO. OF PUMPS~~ / ~~SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF~~ ~~CS~~ / ~~≥ 6250 gpm~~ / 2 / ~~≥ 105 psid~~ ~~SYSTEM~~ / ~~FLOW RATE~~ / ~~NO. OF PUMPS~~ / ~~INDICATED SYSTEM PRESSURE~~ ~~LPCI~~ / ~~≥ 9,000 gpm~~ / ~~1~~ / ~~≥ 125 psig~~	~~In accordance with the INSERVICE TESTING PROGRAM~~
SR 3.5.2.~~5~~ 7	--------------------------NOTE-------------------------- Vessel injection/spray may be excluded. --- Verify ~~each~~ the required ECCS injection/spray subsystem ~~actuates on an actual or simulated automatic initiation signal.~~ can be manually operated.	24 months

TS 3.5.2 Inserts

Insert 1
TS 3.5.2 Page 3.5-8

C. DRAIN TIME < 36 hours and ≥ 8 hours.	*C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.*	*4 hours*
	AND	
	C.2 Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	*4 hours*
	AND	
	C.3 Verify two standby gas treatment subsystems are capable of being placed in operation in less than the DRAIN TIME.	*4 hours*

Insert 2
TS 3.5.2 Page 3.5-9

D. DRAIN TIME < 8 hours.	*D.1 ---------- NOTE --------------- Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ------------------------------------ Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.*	*Immediately*
	<u>AND</u>	
	D.2 Initiate action to establish secondary containment boundary.	*Immediately*
	<u>AND</u>	
	D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be automatically or manually isolated from the control room.	*Immediately*
	<u>AND</u>	
	D.4 Initiate action to verify two standby gas treatment subsystems are capable of being placed in operation.	*Immediately*
E. Required Action and associated Completion Time of Condition C or D not met. <u>OR</u> DRAIN TIME < 1 hour.	*E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.*	*Immediately*

Insert 3
TS 3.5.2 Page 3.5-10

SR 3.5.2.1	*Verify DRAIN TIME ≥ 36 hours.*	*12 hours*

Insert 4
TS 3.5.2 Page 3.5-11

SR 3.5.2.5	*Operate the required ECCS injection/spray subsystem through the test return line for ≥ 10 minutes.*	*92 days*
SR 3.5.2.6	*Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.*	*24 months*

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. AND A.2 Restore RCIC System to OPERABLE status.	Immediately 14 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Reduce reactor steam dome pressure to ≤ 150 psig.	12 hours 36 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

Insert "."

APPLICABILITY: MODES 1, 2, and 3~~,~~
~~When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."~~

Relocated text from Page 3.6-10

Relocate to Page 3.6-9

ACTIONS

NOTES

1. Penetration flow paths except for 18 and 20 inch purge valve penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria ~~in MODES 1, 2, and 3~~.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. NOTE Only applicable to penetration flow paths with two PCIVs. One or more penetration flow paths with one PCIV inoperable except due to MSIV leakage not within limits.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	4 hours except for main steam line AND 8 hours for main steam line

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more penetration flow paths with MSIV leakage not within limits.	D.1	Restore leakage rate to within limit.	4 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met ~~in MODE 1, 2, or 3~~.	E.1	Be in MODE 3.	12 hours
	AND		
	E.2	Be in MODE 4.	36 hours
~~F. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.~~	~~F.1~~	~~Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).~~	~~Immediately~~.
	~~OR~~		
	~~F.2~~	~~NOTE~~ ~~Only applicable for inoperable RHR Shutdown Cooling Valves.~~ ~~Initiate action to restore valve(s) to OPERABLE status.~~	~~Immediately~~

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 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.	4 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

~~(continued)~~

Double underline

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C. Secondary containment inoperable during OPDRVs.~~	~~C.1 Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3~~,~~
~~During operations with a potential for draining the reactor vessel (OPDRVs)~~.

ACTIONS

-----NOTES-----

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	8 hours
	<u>AND</u>		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	-----NOTE----- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days
B. -----NOTE----- Only applicable to penetration flow paths with two isolation valves. ---------- One or more penetration flow paths with two SCIVs inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	4 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)~~

Double undeline

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~D. Required Action and associated Completion Time of Condition A or B not met during OPDRVs.~~	~~D.1 Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Three SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3~~,~~
~~During operations with a potential for draining the reactor vessel (OPDRVs)~~.

ACTIONS

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

~~(continued)~~

Relocate remaining row from Page 3.6-52

Relocate remaining row to Page 3.6-51 insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~C. Required Action and associated Completion Time of Condition A not met during OPDRVs.~~	~~C.1~~	~~Place two OPERABLE SGT subsystems in operation.~~	~~Immediately~~
	~~OR~~		
	~~C.2~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~
~~D~~ C. Two or three SGT subsystems inoperable ~~in MODE 1, 2, or 3~~.	~~D~~ C.1	Enter LCO 3.0.3.	Immediately

Double underline

~~(continued)~~

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~E. Two or three SGT subsystems inoperable during OPDRVs.~~	~~E.1 Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.7 PLANT SYSTEMS

3.7.3 Control Room Emergency Ventilation (CREV) System

LCO 3.7.3 Two CREV subsystems shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, and 3~~, during operations with a potential for draining the reactor vessel (OPDRVs)~~.

ACTIONS

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Two CREV subsystems inoperable due to inoperable High Efficiency Particulate Air (HEPA) filter or charcoal adsorbers which do not impact ability of CREV subsystems to meet flowrate requirements specified in the Ventilation Filter Testing Program (VFTP).	C.1	Restore HEPA filter and one charcoal adsorber to OPERABLE status.	7 days
D. One CREV subsystem inoperable due to inoperable charcoal adsorber which does not impact the ability of CREV subsystem to meet flowrate requirements specified in the VFTP.	D.1	Restore charcoal adsorber to OPERABLE status.	14 days
E. Required Action and associated Completion Time of Condition A, B, C, or D not met ~~in MODE 1, 2, or 3~~.	E.1 AND	Be in MODE 3.	12 hours
	E.2	Be in MODE 4.	36 hours

~~(continued)~~

Relocate remaining row from next page

9

Relocate remaining row to previous page and delete this page

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~F. Required Action and associated Completion Time of Condition A or D not met during OPDRVs.~~	~~F.1~~	~~Place OPERABLE CREV subsystem in pressurization mode.~~	~~Immediately~~
	~~OR~~		
	~~F.2~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~
~~G.~~ F. Two CREV subsystems ~~inoperable in MODE 1, 2, or 3~~ for reasons other than Condition B or C.	~~G.~~F.1	Enter LCO 3.0.3.	Immediately

~~(continued)~~

Double underline

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~H. Required Action and associated Completion Time of Condition C not met during OPDRVs.~~ ~~OR~~ ~~Two CREV subsystems inoperable during OPDRVs for reasons other than Condition C.~~ ~~OR~~ ~~One or more CREV subsystems inoperable due to an inoperable CRE Boundary during OPDRVs.~~	~~H.1~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Two Unit 1 and 2 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 Unit 1 and 2 control room AC subsystem inoperable.	A.1	Restore Unit 1 and 2 control room AC subsystem to OPERABLE status.	30 days

(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~~,~~ or during CORE ALTERATIONS~~, or during OPDRVs.~~ Replace with "."	D.1	----------NOTE---------- LCO 3.0.3 is not applicable. ------------------------------	
		Place OPERABLE control room AC subsystem in operation.	Immediately
	<u>OR</u>		
	D.2.1	Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>		
	D.2.2	Suspend CORE ALTERATIONS.	Immediately
	~~AND~~		
	~~D.2.3~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	~~A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).~~	~~Immediately~~
	~~AND~~	
	A.2.~~4~~ Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One or more required Unit 1 and 2 DGs inoperable.	B.~~1~~.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	B.~~1~~.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	~~AND~~	
	~~B.1.3 Initiate action to suspend OPDRVs.~~	~~Immediately~~
	AND	
	B.~~1.4~~ Initiate action to restore required Unit 1 and 2 DGs to OPERABLE status.	Immediately

(continued)

3

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.2.1	---NOTE--- The following SRs are not required to be performed: SR 3.8.1.2, SR 3.8.1.5, SR 3.8.1.7, and SR 3.8.1.8~~, and SR 3.8.1.9~~. --- For Unit 1 and 2 AC sources required to be OPERABLE, the SRs of Specification 3.8.1, except SR 3.8.1.6 and SR 3.8.1.9 are applicable.	In accordance with applicable SRs
SR 3.8.2.2	For the required Unit 3 DG, the SRs of Unit 3 Technical Specifications are applicable.	In accordance with applicable SRs

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	~~A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.~~ ~~AND~~ A.2.~~4~~ 3 Initiate action to restore required DC electrical power subsystems or systems to OPERABLE status.	~~Immediately~~ Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	~~A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.~~	~~Immediately~~
	~~AND~~	
	A.2.~~4~~ 3 Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.~~5~~ 4 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

Attachment 3 to CNL-19-010

Proposed Technical Specification Changes (Unit 2 Mark-up)
(55 total pages)

TABLE OF CONTENTS

Use this header for each TOC page

Remove underline

Scroll to next page

Scroll to next page

Reactor Pressure Vessel (RPV) Water Inventory Control

Scroll to next page

Scroll to new Page v

This is a new page

LIST OF TABLES

LIST OF FIGURES

1.1 Definitions (continued)

CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."

Insert 1

INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

(continued)

Insert 1

DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

a. *The water inventory above the TAF is divided by the limiting drain rate;*

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

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

    2. *Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or*

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

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

d. *No additional draining events occur; and*

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

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1	----------NOTES---------- ~~1. Only applicable in MODES 1, 2, and 3.~~ ~~2.~~ Only applicable for Functions 1.a, 1.b, 2.a, and 2.b. ------------------------	
		Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for features in both divisions
	<u>AND</u>		
	B.2	----------NOTE---------- Only applicable for Functions 3.a and 3.b. ------------------------	
		Declare High Pressure Coolant Injection (HPCI) System inoperable.	1 hour from discovery of loss of HPCI initiation capability
	<u>AND</u>		
	B.3	Place channel in trip.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1	------------NOTES------------ ~~1. Only applicable in MODES 1, 2, and 3.~~ ~~2.~~ Only applicable for Functions 1.c, 1.e, 2.c, 2.d, and 2.f. ------------------------------------	
		Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for features in both divisions
	<u>AND</u>		
	C.2	Restore channel to OPERABLE status.	24 hours
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1	------------NOTE------------ Only applicable if HPCI pump suction is not aligned to the suppression pool. ------------------------------------	
		Declare HPCI System inoperable.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1	----------NOTES--------- ~~1. Only applicable in MODES 1, 2, and 3.~~ ~~2.~~ Only applicable for Function 1.d. --------------------------------	
		Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	<u>AND</u>		
	E.2	Restore channel to OPERABLE status.	7 days

(continued)

Table 3.3.5.1-1 (page 1 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low Low, Level 1[e]	1,2,3, ~~4[a], 5[a]~~	4[b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure - High[e]	1,2,3	4[b]	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive and ECCS Initiation)[e]	1,2,3	4[b] 2 per trip system	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig
	~~4[a], 5[a]~~	~~4 2 per trip system~~	~~B~~	~~SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6~~	~~≥ 435 psig and ≤ 465 psig~~
d. Core Spray Pump Discharge Flow - Low (Bypass)	1,2,3, ~~4[a], 5[a]~~	2 1 per subsystem	E	SR 3.3.5.1.2 SR 3.3.5.1.5	≥ 1647 gpm and ≤ 2910 gpm
e. Core Spray Pump Start - Time Delay Relay					
Pumps A,B,C,D (with diesel power)	1,2,3, ~~4[a], 5[a]~~	4 1 per pump	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump A (with normal power)	1,2,3, ~~4[a], 5[a]~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3, ~~4[a], 5[a]~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds

Remove comma

(continued)

(a) ~~When associated subsystem(s) are required to be OPERABLE.~~ Deleted.

(b) Channels affect Common Accident Signal Logic. Refer to LCO 3.8.1, "AC Sources - Operating."

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System (continued)					
e. Core Spray Pump Start - Time Delay Relay (continued)					
Pump C (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level - Low Low Low, Level 1(e)	1,2,3, ~~4(a), 5(a)~~	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure - High(e)	1,2,3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive and ECCS Initiation)(e)	1,2,3	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig
	~~4(a), 5(a)~~	~~4~~	~~B~~	~~SR 3.3.5.1.2~~ ~~SR 3.3.5.1.4~~ ~~SR 3.3.5.1.6~~	~~≥ 435 psig and ≤ 465 psig~~

Remove comma

(continued)

(a) ~~When associated subsystem(s) are required to be OPERABLE.~~ Deleted.

(b) Deleted.

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
d. Reactor Steam Dome Pressure - Low (Recirculation Discharge Valve Permissive)(e)	1(c), 2(c), 3(c)	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 215 psig and ≤ 245 psig
e. Reactor Vessel Water Level - Level 0	1,2,3	2 1 per subsystem	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 312 5/16 inches above vessel zero
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay					
Pump A,B,C,D (with diesel power)	1,2,3, ~~4(a), 5(a)~~	4	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump A (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump C (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds

Remove comma

(continued)

(a) ~~When the associated subsystem(s) are required to be OPERABLE.~~ Deleted.

(c) With associated recirculation pump discharge valve open.

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

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

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1 Declare associated penetration flow path(s) incapable of automatic isolation. <u>AND</u> B.2 Calculate DRAIN TIME.	Immediately Immediately
C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	C.1 Place channel in trip.	1 hour
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	D.1 Restore channel to OPERABLE status.	24 hours

This is a new page

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met.	E.1	Declare associated low pressure Emergency Core Cooling System (ECCS) injection/spray subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	1 per subsystem[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
b. Core Spray Pump Discharge Flow - Low (Bypass)	4, 5	1 per subsystem[(a)]	D	SR 3.3.5.2.2	≥ 1647 gpm and ≤ 2910 gpm
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	2 in one trip system[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
3. Shutdown Cooling System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "Reactor Pressure Vessel Water Inventory Control."

(b) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.5.~~2~~ Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.~~2~~ The RCIC System instrumentation for each Function in Table 3.3.5.~~2~~-1 shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more channels inoperable.	A.1	Enter the Condition referenced in Table 3.3.5.~~2~~-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.~~2~~-1.	B.1	Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	<u>AND</u>		
	B.2	Place channel in trip.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.~~2~~-1.	C.1	Restore channel to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition B or C not met.	D.1	Declare RCIC System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

NOTES

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

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

	SURVEILLANCE	FREQUENCY
SR 3.3.5.2.1	~~Perform CHANNEL CHECK.~~ 3	24 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.2.3	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

~~shall be implemented before commencing Cycle 11 operation~~

Table 3.3.5.~~2-~~1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2[(a)]	4	B	SR 3.3.5.~~2.~~1 SR 3.3.5.~~2.~~2 SR 3.3.5.~~2.~~3 SR 3.3.5.~~2.~~4	≥ 470 inches above vessel zero
2. Reactor Vessel Water Level - High, Level 8	2	C	SR 3.3.5.~~2.~~1 SR 3.3.5.~~2.~~2 SR 3.3.5.~~2.~~3 SR 3.3.5.~~2.~~4	≤ 583 inches above vessel zero

(a) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

3

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1	Declare standby liquid control system (SLC) inoperable.	1 hour
	<u>OR</u>		
	H.2	Isolate the Reactor Water Cleanup System.	1 hour
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1	Initiate action to restore channel to OPERABLE status.	Immediately
	~~OR~~		
	~~I.2~~	~~Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System.~~	~~Immediately~~

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Main Steam Valve Vault Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 188°F
b. Pipe Trench Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 135°F
c. Pump Room A Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
d. Pump Room B Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
e. Heat Exchanger Room Area (West Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 143°F
f. Heat Exchanger Room Area (East Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 170°F
g. SLC System Initiation	1,2,3	1[(a)]	H	SR 3.3.6.1.6	NA
h. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 115 psig
b. Reactor Vessel Water Level - Low, Level 3	3~~,4,5~~	2~~(b)~~	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
c. Drywell Pressure - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 2.5 psig

(a) One SLC System Initiation signal provides logic input to close both RWCU valves.
(b) ~~Only one channel per trip system required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained.~~

Deleted.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3, ~~(a)~~	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3, ~~(a)~~	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3, ~~(a)~~	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr

Remove comma

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

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Ventilation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3,~~(a)~~	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	B	SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3 ~~(a)~~	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3, ~~(a)~~	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
5. Control Room Air Supply Duct Radiation - High	1,2,3, ~~(a)~~	1	D	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 270 cpm above background

Remove comma

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

, RPV WATER INVENTORY CONTROL,

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. <u>OR</u> One low pressure coolant injection (LPCI) pump in both LPCI subsystems inoperable.	A.1	Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days[1]

(continued)

[1] - This Completion Time may be extended to 14 days on a one-time basis. This temporary approval expires June 1, 2005.

, RPV WATER INVENTORY CONTROL,

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.2 ~~ECCS - Shutdown~~ Reactor Pressure Vessel (RPV) Water Inventory Control

LCO 3.5.2 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

AND

~~Two~~ One low pressure ECCS injection/spray subsystem~~s~~ shall be OPERABLE.

Relocation from SR 3.5.2.3

APPLICABILITY: MODE~~S~~ 4~~,~~ and
~~MODE 5, except with the spent fuel storage pool gates removed and water level ≥ 22 ft over the top of the reactor pressure vessel flange.~~ MODE 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~One~~ R required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 ~~Initiate action to suspend OPDRVs.~~ Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately
~~C. Two required ECCS injection/spray subsystems inoperable.~~ Insert 1	~~C.1 Initiate action to suspend OPDRVs.~~ ~~AND~~ ~~C.2 Restore one ECCS injection/spray subsystem to OPERABLE status.~~	~~Immediately~~ ~~4 hours~~

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~D. Required Action C.2 and associated Completion Time not met.~~	~~D.1~~	~~Initiate action to restore secondary containment to OPERABLE status.~~	~~Immediately~~
	~~AND~~		
	~~D.2~~	~~Initiate action to restore two standby gas treatment subsystems to OPERABLE status.~~	~~Immediately~~
	~~AND~~		
	~~D.3~~	~~Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.~~	~~Immediately~~

Insert 2

Insert 3

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.2.~~1~~ 2	Verify, for ~~each~~ the required ECCS injection/spray subsystem, the suppression pool water level is ≥ -6.25 inches with or -7.25 inches without differential pressure control.	12 hours
SR 3.5.2.~~2~~ 3	Verify, for ~~each~~ the required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.2.~~3~~ 4 Relocate to LCO	-------------------NOTE------------------- ~~One LPCI~~ A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable. -- Verify ~~each~~ for the required ECCS injection/spray subsystem each 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.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.5.2.4~~	~~Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure.~~ Insert 4	~~In accordance with the INSERVICE TESTING PROGRAM~~
SR 3.5.2.~~5~~ 7	---NOTE--- Vessel injection/spray may be excluded. --- Verify ~~each~~ the required ECCS injection/spray subsystem ~~actuates on an actual or simulated automatic initiation signal.~~ can be manually operated.	24 months

~~SYSTEM~~	~~FLOW RATE~~	~~NO. OF PUMPS~~	~~SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF~~
~~CS~~	~~≥ 6250 gpm~~	~~2~~	~~≥ 105 psid~~

~~SYSTEM~~	~~FLOW RATE~~	~~NO. OF PUMPS~~	~~INDICATED SYSTEM PRESSURE~~
~~LPCI~~	~~≥ 9,000 gpm~~	~~1~~	~~≥ 125 psig~~

TS 3.5.2 Inserts

Insert 1
TS 3.5.2 Page 3.5-8

C. DRAIN TIME $<$ 36 hours and $\geq$ 8 hours.	*C.1*	*Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.*	*4 hours*
	<u>AND</u>		
	C.2	*Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.*	*4 hours*
	<u>AND</u>		
	C.3	*Verify two standby gas treatment subsystems are capable of being placed in operation in less than the DRAIN TIME.*	*4 hours*

Insert 2
TS 3.5.2 Page 3.5-9

D. DRAIN TIME < 8 hours.	*D.1 ----------- NOTE --------------- Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ------------------------------------ Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.*	*Immediately*
	AND	
	D.2 Initiate action to establish secondary containment boundary.	*Immediately*
	AND	
	D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be automatically or manually isolated from the control room.	*Immediately*
	AND	
	D.4 Initiate action to verify two standby gas treatment subsystems are capable of being placed in operation.	*Immediately*
E. Required Action and associated Completion Time of Condition C or D not met. OR DRAIN TIME < 1 hour.	*E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.*	*Immediately*

Insert 3
TS 3.5.2 Page 3.5-10

SR 3.5.2.1	*Verify DRAIN TIME ≥ 36 hours.*	*12 hours*

Insert 4
TS 3.5.2 Page 3.5-11

SR 3.5.2.5	*Operate the required ECCS injection/spray subsystem through the test return line for ≥ 10 minutes.*	*92 days*
SR 3.5.2.6	*Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.*	*24 months*

, RPV WATER INVENTORY CONTROL,

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
	<u>AND</u>	
	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
	<u>AND</u>	
	B.2 Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3~~,~~ Insert "."
~~When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."~~

Relocated text from Page 3.6-10

Relocate to Page 3.6-9

ACTIONS

NOTES

1. Penetration flow paths except for 18 and 20 inch purge valve penetration flow paths may be unisolated intermittently under administrative controls.

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

3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria ~~in MODES 1, 2, and 3~~.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. NOTE Only applicable to penetration flow paths with two PCIVs. One or more penetration flow paths with one PCIV inoperable except due to MSIV leakage not within limits.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	4 hours except for main steam line AND 8 hours for main steam line
	AND		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more penetration flow paths with MSIV leakage not within limits.	D.1	Restore leakage rate to within limit.	4 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met ~~in MODE 1, 2, or 3~~.	E.1	Be in MODE 3.	12 hours
	AND		
	E.2	Be in MODE 4.	36 hours
~~F. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.~~	~~F.1~~	~~Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).~~	~~Immediately~~
	~~OR~~		
	~~F.2~~	~~NOTE~~ ~~Only applicable for inoperable RHR Shutdown Cooling Valves.~~ ~~Initiate action to restore valve(s) to OPERABLE status.~~	~~Immediately~~

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 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.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

~~(continued)~~

Double underline

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~C. Secondary containment inoperable during OPDRVs.~~	~~C.1~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3~~,~~
~~During operations with a potential for draining the reactor vessel (OPDRVs)~~.

ACTIONS

---NOTES---

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	8 hours
	<u>AND</u>		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	----------NOTE---------- Isolation devices in high radiation areas may be verified by use of administrative means. -------------------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
B. ----------NOTE---------- Only applicable to penetration flow paths with two isolation valves. -------------------------------- One or more penetration flow paths with two SCIVs inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	4 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)~~

Double undeline

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~D. Required Action and associated Completion Time of Condition A or B not met during OPDRVs.~~	~~D.1~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Three SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3~~,~~
~~During operations with a potential for draining the reactor vessel (OPDRVs)~~.

ACTIONS

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

~~(continued)~~

Relocate remaining row from Page 3.6-52

Relocate remaining row to Page 3.6-51 and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~C. Required Action and associated Completion Time of Condition A not met during OPDRVs.~~	~~C.1~~	~~Place two OPERABLE SGT subsystems in operation.~~	~~Immediately~~
	<u>~~OR~~</u>		
	~~C.2~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~
~~D.~~ C. Two or three SGT subsystems inoperable ~~in MODE 1, 2, or 3~~.	~~D~~C.1	Enter LCO 3.0.3.	Immediately

Double underline

~~(continued)~~

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~E. Two or three SGT subsystems inoperable during OPDRVs.~~	~~E.1~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.7 PLANT SYSTEMS

3.7.3 Control Room Emergency Ventilation (CREV) System

LCO 3.7.3 Two CREV subsystems shall be OPERABLE.

---NOTE---

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

APPLICABILITY: MODES 1, 2, and 3~~, during operations with a potential for draining the reactor vessel (OPDRVs)~~.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREV subsystem inoperable for reasons other than Condition B, C, or D.	A.1 Restore CREV subsystem to OPERABLE status.	7 days
B. One or more CREV subsystems inoperable due to inoperable CRE boundary ~~in MODE 1, 2, or 3~~.	B.1 Initiate actions to implement mitigating actions.	Immediately
	<u>AND</u>	
	B.2 Verify mitigating actions ensure CRE occupant exposures to radiological hazards will not exceed limits, and verify the CRE occupants are protected from smoke and chemical hazards.	24 Hours
	<u>AND</u>	
	B.3 Restore CRE boundary to OPERABLE status.	90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Two CREV subsystems inoperable due to inoperable High Efficiency Particulate Air (HEPA) filter or charcoal adsorbers which do not impact ability of CREV subsystems to meet flowrate requirements specified in the Ventilation Filter Testing Program (VFTP).	C.1	Restore HEPA filter and one charcoal adsorber to OPERABLE status.	7 days
D. One CREV subsystem inoperable due to inoperable charcoal adsorber which does not impact the ability of CREV subsystem to meet flowrate requirements specified in the VFTP.	D.1	Restore charcoal adsorber to OPERABLE status.	14 days
E. Required Action and associated Completion Time of Condition A, B, C, or D not met ~~in MODE 1, 2, or 3~~.	E.1	Be in MODE 3.	12 hours
	AND		
	E.2	Be in MODE 4.	36 hours

~~(continued)~~

Relocate remaining row from next page

10

Relocate remaining row to previous page and delete this page

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~F. Required Action and associated Completion Time of Condition A or D not met during OPDRVs.~~	~~F.1~~	~~Place OPERABLE CREV subsystem in pressurization mode.~~	~~Immediately~~
	~~OR~~		
	~~F.2~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~
~~G.~~ F Two CREV subsystems inoperable ~~in MODE 1, 2, or 3~~ for reasons other than Condition B or C.	~~G~~F.1	Enter LCO 3.0.3.	Immediately

~~(continued)~~

Double underline

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~H. Required Action and associated Completion Time of Condition C not met during OPDRVs~~ OR ~~Two CREV subsystems inoperable during OPDRVs for reasons other than Condition C.~~ OR ~~One or more CREV subsystems inoperable due to an inoperable CRE Boundary during OPDRVs.~~	~~H.1~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Two Unit 1 and 2 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 Unit 1 and 2 control room AC subsystem inoperable.	A.1	Restore Unit 1 and 2 control room AC subsystem to OPERABLE status.	30 days

(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~~,~~ or during CORE ALTERATIONS~~, or during OPDRVs.~~ Replace with "."	D.1	----------NOTE---------- LCO 3.0.3 is not applicable. ------------------------------ Place OPERABLE control room AC subsystem in operation.	Immediately
	<u>OR</u>		
	D.2.1	Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>		
	D.2.2	Suspend CORE ALTERATIONS.	Immediately
	~~<u>AND</u>~~		
	~~D.2.3~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	~~A.2.3~~	~~Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).~~	~~Immediately~~
	~~AND~~		
	A.2.~~4~~ 3	Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One or more required Unit 1 and 2 DGs inoperable.	B.~~1.~~1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	B.~~1.~~2	Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	AND		
	~~B.1.3~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~
	AND		
	B.~~1.4~~ 3	Initiate action to restore required Unit 1 and 2 DGs to OPERABLE status.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.2.1	---------------------NOTE-------------------- The following SRs are not required to be performed: SR 3.8.1.2, SR 3.8.1.5, SR 3.8.1.7, and SR 3.8.1.8~~, and SR 3.8.1.9~~. --- For Unit 1 and 2 AC sources required to be OPERABLE, the SRs of Specification 3.8.1 are applicable, except SR 3.8.1.6 and SR 3.8.1.9.	In accordance with applicable SRs
SR 3.8.2.2	For the required Unit 3 DG, the SRs of Unit 3 Technical Specifications are applicable.	In accordance with applicable SRs

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	~~A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.~~ ~~AND~~ A.2.~~4~~ 3 Initiate action to restore required DC electrical power subsystems or systems to OPERABLE status.	~~Immediately~~ Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	~~A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.~~ ~~AND~~ A.2.~~4~~ 3 Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status. AND A.2.~~5~~ 4 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	~~Immediately~~ Immediately Immediately

Attachment 4 to CNL-19-010

Proposed Technical Specification Changes (Unit 3 Mark-up)
(55 total pages)

TABLE OF CONTENTS (continued)

(continued)

TABLE OF CONTENTS (continued)

Reactor Pressure Vessel (RPV) Water Inventory Control

(continued)

TABLE OF CONTENTS (continued)

(continued)

LIST OF TABLES

LIST OF FIGURES

1.1 Definitions (continued)

CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
Insert 1	
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the license program that fulfills the requirements of 10 CFR 50.55a(f).

(continued)

Insert 1

DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

a. *The water inventory above the TAF is divided by the limiting drain rate;*

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

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

   2. *Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or*

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

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

d. *No additional draining events occur; and*

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

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

ACTIONS (continued)

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1	------------NOTE~~S~~------------ ~~1. Only applicable in MODES 1, 2, and 3.~~ ~~2.~~ Only applicable for Functions 1.c, 1.e, 2.c, 2.d, and 2.f. ------------------------------------- Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for features in both divisions
	<u>AND</u>		
	C.2	Restore channel to OPERABLE status.	24 hours
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1	------------NOTE------------ Only applicable if HPCI pump suction is not aligned to the suppression pool. ------------------------------------- Declare HPCI System inoperable.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1	------NOTES------ ~~1. Only applicable in MODES 1, 2, and 3.~~ ~~2.~~ Only applicable for Function 1.d. -------------	
		Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	AND		
	E.2	Restore channel to OPERABLE status.	7 days

(continued)

Table 3.3.5.1-1 (page 1 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level — Low Low Low, Level 1[f]	1,2,3, ~~4[a], 5[a]~~	4[b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure — High[f]	1,2,3	4[b]	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure — Low (Injection Permissive and ECCS Initiation)[f]	1,2,3	4[b] 2 per trip system	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig
	~~4[a], 5[a]~~	~~4~~ ~~2 per trip system~~	~~B~~	~~SR 3.3.5.1.2~~ ~~SR 3.3.5.1.4~~ ~~SR 3.3.5.1.6~~	~~≥ 435 psig and ≤ 465 psig~~
d. Core Spray Pump Discharge Flow — Low (Bypass)	1,2,3, ~~4[a], 5[a]~~	2 ~~1 per subsystem~~	E	SR 3.3.5.1.2 SR 3.3.5.1.5	≥ 1647 gpm and ≤ 2910 gpm
e. Core Spray Pump Start — Time Delay Relay					
Pumps A,B,C,D (with diesel power)	1,2,3, ~~4[a], 5[a]~~	4 1 per pump	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump A (with normal power)	1,2,3, ~~4[a], 5[a]~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3, ~~4[a], 5[a]~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds

Remove comma

(continued)

(a) ~~When associated subsystem(s) are required to be OPERABLE.~~ Deleted.

(b) Channels affect Common Accident Signal Logic. Refer to LCO 3.8.1, "AC Sources - Operating."

(f) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System (continued)					
e. Core Spray Pump Start — Time Delay Relay (continued)					
Pump C (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level — Low Low Low, Level 1[f]	1,2,3, ~~4(a), 5(a)~~	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure — High[f]	1,2,3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure — Low (Injection Permissive and ECCS Initiation)[f]	1,2,3	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig
	~~4(a), 5(a)~~	4	~~B~~	~~SR 3.3.5.1.2~~ ~~SR 3.3.5.1.4~~ ~~SR 3.3.5.1.6~~	~~≥ 435 psig and ≤ 465 psig~~

(continued)

Remove comma

(a) ~~When associated subsystem(s) are required to be OPERABLE.~~ Deleted.

(b) Deleted.

(f) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
d. Reactor Steam Dome Pressure — Low (Recirculation Discharge Valve Permissive)(f)	1(c),2(c), 3(c)	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 215 psig and ≤ 245 psig
e. Reactor Vessel Water Level — Level 0	1,2,3	2 1 per subsystem	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 312 5/16 inches above vessel zero
f. Low Pressure Coolant Injection Pump Start — Time Delay Relay					
Pump A,B,C,D (with diesel power)	1,2,3, ~~4(a), 5(a)~~	4	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump A (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump C (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3, ~~4(a), 5(a)~~	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds

Remove comma

(continued)

(a) ~~When the associated subsystem(s) are required to be OPERABLE.~~ Deleted.

(c) With associated recirculation pump discharge valve open.

(f) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

This is a new page

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

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

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1 Declare associated penetration flow path(s) incapable of automatic isolation.	Immediately
	<u>AND</u>	
	B.2 Calculate DRAIN TIME.	Immediately
C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	C.1 Place channel in trip.	1 hour
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	D.1 Restore channel to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met.	E.1	Declare associated low pressure Emergency Core Cooling System (ECCS) injection/spray subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	1 per subsystem[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
b. Core Spray Pump Discharge Flow - Low (Bypass)	4, 5	1 per subsystem[(a)]	D	SR 3.3.5.2.2	≥ 1647 gpm and ≤ 2910 gpm
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	2 in one trip system[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
3. Shutdown Cooling System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "Reactor Pressure Vessel Water Inventory Control."

(b) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.5.~~2~~ Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.~~2~~ The RCIC System instrumentation for each Function in Table 3.3.5.~~2-1~~ shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more channels inoperable.	A.1	Enter the Condition referenced in Table 3.3.5.~~2~~-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.~~2~~-1.	B.1	Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	AND		
	B.2	Place channel in trip.	24 hours

(continued)

3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.~~2~~-1.	C.1 Restore channel to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition B or C not met.	D.1 Declare RCIC System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTES---

1. Refer to Table 3.3.5.~~2-~~1 to determine which SRs apply for each RCIC Function.

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

	SURVEILLANCE	FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.2.3	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

~~shall be implemented before commencing cycle 10 operation~~

Table 3.3.5.2-1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2[(a)]	4	B	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.3 SR 3.3.5.2.4	≥ 470 inches above vessel zero
2. Reactor Vessel Water Level - High, Level 8	2	C	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.3 SR 3.3.5.2.4	≤ 583 inches above vessel zero

(a) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1	Declare standby liquid control system (SLC) inoperable.	1 hour
	OR		
	H.2	Isolate the Reactor Water Cleanup System.	1 hour
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1	Initiate action to restore channel to OPERABLE status.	Immediately
	~~OR~~		
	~~I.2~~	~~Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System.~~	~~Immediately~~

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Main Steam Valve Vault Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 201°F
b. Pipe Trench Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 135°F
c. Pump Room A Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
d. Pump Room B Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
e. Heat Exchanger Room Area (West Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 143°F
f. Heat Exchanger Room Area (East Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 170°F
g. SLC System Initiation	1,2,3	1(a)	H	SR 3.3.6.1.6	NA
h. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 115 psig
b. Reactor Vessel Water Level - Low, Level 3	3~~,4,5~~	2~~(b)~~	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
c. Drywell Pressure - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 2.5 psig

(a) One SLC System Initiation signal provides logic input to close both RWCU valves.
(b) ~~Only one channel per trip system required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained.~~

Deleted.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3, ~~(a)~~	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3, ~~(a)~~	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3, ~~(a)~~	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr

Remove comma

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

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Ventilation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3~~,(a)~~	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	B	SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3 ~~(a)~~	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3, ~~(a)~~	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
5. Control Room Air Supply Duct Radiation - High	1,2,3, ~~(a)~~	1	D	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 270 cpm above background

Remove comma

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

, RPV WATER INVENTORY CONTROL,

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. <u>OR</u> One low pressure coolant injection (LPCI) pump in both LPCI subsystems inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days

(continued)

, RPV WATER INVENTORY CONTROL,

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.2 ~~ECCS - Shutdown~~ Reactor Pressure Vessel (RPV) Water Inventory Control

LCO 3.5.2 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

AND

~~Two~~ One low pressure ECCS injection/spray subsystems shall be OPERABLE.

Relocation from SR 3.5.2.3

APPLICABILITY: MODES 4, and
MODE 5~~, except with the spent fuel storage pool gates removed and water level ≥ 22 ft over the top of the reactor pressure vessel flange~~.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ~~One~~ Required ECCS injection/spray subsystem inoperable.	A.1	Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	~~Initiate action to suspend OPDRVs.~~ Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately
~~C. Two required ECCS injection/spray subsystems inoperable.~~ Insert 1	~~C.1~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~
	~~AND~~		
	~~C.2~~	~~Restore one ECCS injection/spray subsystem to OPERABLE status.~~	~~4 hours~~

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~D. Required Action C.2 and associated Completion Time not met.~~	~~D.1~~	~~Initiate action to restore secondary containment to OPERABLE status.~~	~~Immediately~~
	~~AND~~		
	~~D.2~~	~~Initiate action to restore two standby gas treatment subsystems to OPERABLE status.~~	~~Immediately~~
	~~AND~~		
	~~D.3~~	~~Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.~~	~~Immediately~~

Insert 2

Insert 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.~~1~~ 2	Verify, for ~~each~~ the required ECCS injection/spray subsystem, the suppression pool water level is ≥ -6.25 inches with or -7.25 inches without differential pressure control.	12 hours
SR 3.5.2.~~2~~ 3	Verify, for ~~each~~ the required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.2.~~3~~ 4	Relocate to LCO -------------------NOTE------------------- ~~One LPCI~~ A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable. --- Verify ~~each~~ for the required ECCS injection/spray subsystem each 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.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.5.2.4~~	~~Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure.~~ Insert 4	~~In accordance with the INSERVICE TESTING PROGRAM~~

~~SYSTEM~~	~~FLOW RATE~~	~~NO. OF PUMPS~~	~~SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF~~
~~CS~~	~~$\geq$ 6250 gpm~~	~~2~~	~~$\geq$ 105 psid~~
~~SYSTEM~~	~~FLOW RATE~~	~~NO. OF PUMPS~~	~~INDICATED SYSTEM PRESSURE~~
~~LPCI~~	~~$\geq$ 9,000 gpm~~	~~1~~	~~$\geq$ 125 psig~~

SURVEILLANCE		FREQUENCY
SR 3.5.2.~~5~~ 7	-------------------------NOTE------------------------- Vessel injection/spray may be excluded. --- Verify ~~each~~ the required ECCS injection/spray subsystem ~~actuates on an actual or simulated automatic initiation signal.~~ can be manually operated.	24 months

TS 3.5.2 Inserts

Insert 1
TS 3.5.2 Page 3.5-8

C. DRAIN TIME < 36 hours and ≥ 8 hours.	*C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.* *AND* *C.2 Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.* *AND* *C.3 Verify two standby gas treatment subsystems are capable of being placed in operation in less than the DRAIN TIME.*	*4 hours* *4 hours* *4 hours*

Insert 2
TS 3.5.2 Page 3.5-9

D. DRAIN TIME < 8 hours.	D.1 ----------- NOTE --------------- Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ------------------------------------- Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.	Immediately
	<u>AND</u>	
	D.2 Initiate action to establish secondary containment boundary.	Immediately
	<u>AND</u>	
	D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be automatically or manually isolated from the control room.	Immediately
	<u>AND</u>	
	D.4 Initiate action to verify two standby gas treatment subsystems are capable of being placed in operation.	Immediately
E. Required Action and associated Completion Time of Condition C or D not met. <u>OR</u> DRAIN TIME < 1 hour.	E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.	Immediately

Insert 3
TS 3.5.2 Page 3.5-10

SR 3.5.2.1	*Verify DRAIN TIME ≥ 36 hours.*	*12 hours*

Insert 4
TS 3.5.2 Page 3.5-11

SR 3.5.2.5	*Operate the required ECCS injection/spray subsystem through the test return line for ≥ 10 minutes.*	*92 days*
SR 3.5.2.6	*Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.*	*24 months*

, RPV WATER INVENTORY CONTROL,

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. AND A.2 Restore RCIC System to OPERABLE status.	Immediately 14 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Reduce reactor steam dome pressure to ≤ 150 psig.	12 hours 36 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3~~,~~ Insert "."
~~When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."~~

Relocated text from Page 3.6-10

Relocate to Page 3.6-9

ACTIONS

NOTES

1. Penetration flow paths except for 18 and 20 inch purge valve penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria ~~in MODES 1, 2, and 3~~.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. NOTE Only applicable to penetration flow paths with two PCIVs. One or more penetration flow paths with one PCIV inoperable except due to MSIV leakage not within limits.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	4 hours except for main steam line AND 8 hours for main steam line
	AND		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more penetration flow paths with MSIV leakage not within limits.	D.1	Restore leakage rate to within limit.	4 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met ~~in MODE 1, 2, or 3~~.	E.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	E.2	Be in MODE 4.	36 hours
~~F. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.~~	~~F.1~~	~~Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).~~	~~Immediately~~
	~~<u>OR</u>~~		
	~~F.2~~	~~NOTE~~ ~~Only applicable for inoperable RHR Shutdown Cooling Valves.~~ ~~Initiate action to restore valve(s) to OPERABLE status.~~	~~Immediately~~

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 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.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	B.2	Be in MODE 4.	36 hours

~~(continued)~~

Double underline

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C. Secondary containment inoperable during OPDRVs.~~	~~C.1 Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3~~,~~
~~During operations with a potential for draining the reactor vessel (OPDRVs)~~.

ACTIONS

-NOTES-

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	8 hours
	<u>AND</u>		

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	---NOTE--- Isolation devices in high radiation areas may be verified by use of administrative means. --- Verify the affected penetration flow path is isolated.	Once per 31 days
B. ---NOTE--- Only applicable to penetration flow paths with two isolation valves. --- One or more penetration flow paths with two SCIVs inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	4 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)~~

Double undeline

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~D. Required Action and associated Completion Time of Condition A or B not met during OPDRVs.~~	~~D.1 Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Three SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3~~,~~
~~During operations with a potential for draining the reactor vessel (OPDRVs)~~.

ACTIONS

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

~~(continued)~~

Relocate remaining row
from Page 3.6-52

Relocate remaining row to Page 3.6-51 and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~C. Required Action and associated Completion Time of Condition A not met during OPDRVs.~~	~~C.1~~	~~Place two OPERABLE SGT subsystems in operation.~~	~~Immediately~~
	~~OR~~		
	~~C.2~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~
~~D~~C. Two or three SGT subsystems inoperable ~~in MODE 1, 2, or 3~~.	~~D~~C.1	Enter LCO 3.0.3.	Immediately

~~(continued)~~

Double underline

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~E. Two or three SGT subsystems inoperable during OPDRVs.~~	~~E.1~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.7 PLANT SYSTEMS

3.7.3 Control Room Emergency Ventilation (CREV) System

LCO 3.7.3 Two CREV subsystems shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, and 3~~, during operations with a potential for draining the reactor vessel (OPDRVs)~~.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREV subsystem inoperable for reasons other than Condition B, C, or D.	A.1 Restore CREV subsystem to OPERABLE status.	7 days
B. One or more CREV subsystems inoperable due to inoperable CRE boundary ~~in MODE 1, 2, or 3~~.	B.1 Initiate actions to implement mitigating actions.	Immediately
	<u>AND</u>	
	B.2 Verify mitigating actions ensure CRE occupant exposures to radiological hazards will not exceed limits, and verify the CRE occupants are protected from smoke and chemical hazards.	24 hours
	<u>AND</u>	
	B.3 Restore CRE boundary to OPERABLE status.	90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Two CREV subsystems inoperable due to inoperable High Efficiency Particulate Air (HEPA) filter or charcoal adsorbers which do not impact ability of CREV subsystems to meet flowrate requirements specified in the Ventilation Filter Testing Program (VFTP).	C.1	Restore HEPA filter and one charcoal adsorber to OPERABLE status.	7 days
D. One CREV subsystem inoperable due to inoperable charcoal adsorber which does not impact the ability of CREV subsystem to meet flowrate requirements specified in the VFTP.	D.1	Restore charcoal adsorber to OPERABLE status.	14 days
E. Required Action and associated Completion Time of Condition A, B, C, or D not met ~~in MODE 1, 2, or 3~~.	E.1	Be in MODE 3.	12 hours
	AND		
	E.2	Be in MODE 4.	36 hours

~~(continued)~~

Relocate remaining row from next page

10

Relocate remaining row to
previous page and delete this page

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~F. Required Action and associated Completion Time of Condition A or D not met during OPDRVs.~~	~~F.1~~	~~Place OPERABLE CREV subsystem in pressurization mode.~~	~~Immediately~~
	OR		
	~~F.2~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~
~~G.~~ F Two CREV subsystems ~~inoperable in MODE 1, 2, or 3~~ for reasons other than Condition B or C.	~~G~~F.1	Enter LCO 3.0.3.	Immediately

~~(continued)~~

Double underline

Delete information on this page and insert "This page intentionally left blank."

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~H. Required Action and associated Completion Time of Condition C not met during OPDRVs.~~ OR ~~Two CREV subsystems inoperable during OPDRVs for reasons other than Condition C.~~ OR ~~One or more CREV subsystems inoperable due to an inoperable CRE Boundary during OPDRVs.~~	~~H.1~~	~~Initiate action to suspend OPDRVs.~~	~~Immediately~~

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Two Unit 3 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 Unit 3 control room AC subsystem inoperable.	A.1	Restore Unit 3 control room AC subsystem to OPERABLE status.	30 days

(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~~,~~ or during CORE ALTERATIONS~~, or during OPDRVs.~~ Replace with "."	D.1	---NOTE--- LCO 3.0.3 is not applicable.	
		Place OPERABLE control room AC subsystem 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~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	~~A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).~~	~~Immediately~~
	~~AND~~	
	A.2.~~4~~ Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One or more required Unit 3 DGs inoperable.	B.~~1.1~~ Suspend CORE ALTERATIONS.	Immediately
	AND	
	B.~~1.2~~ Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	~~AND~~	
	~~B.1.3 Initiate action to suspend OPDRVs.~~	~~Immediately~~
	AND	
	B.~~1.4~~ Initiate action to restore required Unit 3 DGs to OPERABLE status.	Immediately

(continued)

3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	-------------------NOTE------------------- The following SRs are not required to be performed: SR 3.8.1.2, SR 3.8.1.5, SR 3.8.1.7, and SR 3.8.1.8~~, and SR 3.8.1.9~~. For Unit 3 AC sources required to be OPERABLE, the SRs of Specification 3.8.1 are applicable, except SR 3.8.1.6 and SR 3.8.1.9.	In accordance with applicable SRs
SR 3.8.2.2	For the required Unit 1 and 2 DG, the SRs of Unit 1 and 2 Technical Specifications are applicable.	In accordance with applicable SRs

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	~~A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.~~	~~Immediately~~
	~~AND~~	
	A.2.~~4~~ 3 Initiate action to restore required DC electrical power subsystems or systems to OPERABLE status.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	~~A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.~~	~~Immediately~~
	~~AND~~	
	A.2.~~4~~ 3 Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.~~5~~ 4 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

Attachment 5 to CNL-19-010

Revised Technical Specification Pages (Unit 1 Clean)
(52 total pages)

TABLE OF CONTENTS

(continued)

TABLE OF CONTENTS (continued)

(continued)

TABLE OF CONTENTS (continued)

(continued)

TABLE OF CONTENTS (continued)

(continued)

TABLE OF CONTENTS (continued)

LIST OF TABLES

LIST OF FIGURES

1.1 Definitions (continued)

CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
DRAIN TIME	The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming: a. The water inventory above the TAF is divided by the limiting drain rate; b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the TAF except: 1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;

(continued)

1.1 Definitions (continued)

DRAIN TIME (continued)

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

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

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

d. No additional draining events occur; and

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

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

INSERVICE TESTING PROGRAM

The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

(continued)

ACTIONS (continued)

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1	------------NOTE------------ Only applicable for Functions 1.c, 1.e, 2.c, 2.d, and 2.f. --------------------------------- Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for features in both divisions
	<u>AND</u>		
	C.2	Restore channel to OPERABLE status.	24 hours
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1	------------NOTE------------ Only applicable if HPCI pump suction is not aligned to the suppression pool. --------------------------------- Declare HPCI System inoperable.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1	------------NOTE------------ Only applicable for Function 1.d. ----------------------------------	
		Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	<u>AND</u>		
	E.2	Restore channel to OPERABLE status.	7 days

(continued)

Table 3.3.5.1-1 (page 1 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low Low, Level 1(e)	1,2,3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure - High(e)	1,2,3	4(b)	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive and ECCS Initiation)(e)	1,2,3	4(b) 2 per trip system	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig
d. Core Spray Pump Discharge Flow - Low (Bypass)	1,2,3	2 1 per subsystem	E	SR 3.3.5.1.2 SR 3.3.5.1.5	≥ 1647 gpm and ≤ 2910 gpm
e. Core Spray Pump Start - Time Delay Relay					
Pumps A,B,C,D (with diesel power)	1,2,3	4 1 per pump	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump A (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds

(continued)

(a) Deleted.

(b) Channels affect Common Accident Signal Logic. Refer to LCO 3.8.1, "AC Sources - Operating."

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System (continued)					
e. Core Spray Pump Start - Time Delay Relay (continued)					
Pump C (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level - Low Low Low, Level 1[(e)]	1,2,3	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure - High[(e)]	1,2,3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive and ECCS Initiation)[(e)]	1,2,3	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig

(continued)

(a) Deleted.

(b) Deleted.

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
d. Reactor Steam Dome Pressure - Low (Recirculation Discharge Valve Permissive)(e)	1(c),2(c), 3(c)	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 215 psig and ≤ 245 psig
e. Reactor Vessel Water Level - Level 0	1,2,3	2 1 per subsystem	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 312 5/16 inches above vessel zero
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay					
Pump A,B,C,D (with diesel power)	1,2,3	4	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump A (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump C (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds

(continued)

(a) Deleted.

(c) With associated recirculation pump discharge valve open.

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

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

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

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

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

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

---NOTE---

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	1 per subsystem[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
b. Core Spray Pump Discharge Flow - Low (Bypass)	4, 5	1 per subsystem[(a)]	D	SR 3.3.5.2.2	≥ 1647 gpm and ≤ 2910 gpm
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	2 in one trip system[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
3. Shutdown Cooling System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "Reactor Pressure Vessel Water Inventory Control."

(b) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.5.3 Reactor Core Isolation Cooling (RCIC) System Instrumentation

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

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

ACTIONS

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

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	C.1	Restore channel to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition B or C not met.	D.1	Declare RCIC System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.3.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.3.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.3.3	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.3.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

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

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2[(a)]	4	B	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.4	≥ 470 inches above vessel zero
2. Reactor Vessel Water Level - High, Level 8	2	C	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.4	≤ 583 inches above vessel zero

(a) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1	Declare standby liquid control system (SLC) inoperable.	1 hour
	OR		
	H.2	Isolate the Reactor Water Cleanup System.	1 hour
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1	Initiate action to restore channel to OPERABLE status.	Immediately

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Main Steam Valve Vault Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 201°F
b. Pipe Trench Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 135°F
c. Pump Room A Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
d. Pump Room B Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
e. Heat Exchanger Room Area (West Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 170°F
f. Heat Exchanger Room Area (East Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 143°F
g. SLC System Initiation	1,2,3	1[(a)]	H	SR 3.3.6.1.6	NA
h. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 115 psig
b. Reactor Vessel Water Level - Low, Level 3	3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
c. Drywell Pressure - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 2.5 psig

(a) One SLC System Initiation signal provides logic input to close both RWCU valves.

(b) Deleted.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Ventilation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	B	SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
5. Control Room Air Supply Duct Radiation - High	1,2,3	1	D	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 270 cpm above background

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. OR One low pressure coolant injection (LPCI) pump in both LPCI subsystems inoperable.	A.1	Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control

LCO 3.5.2 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

AND

One low pressure ECCS injection/spray subsystem shall be OPERABLE.

-----NOTE-----
A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODES 4 and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately
C. DRAIN TIME < 36 hours and ≥ 8 hours.	C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME. AND	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2	Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
	<u>AND</u>		
	C.3	Verify two standby gas treatment subsystems are capable of being placed in operation in less than the DRAIN TIME.	4 hours
D. DRAIN TIME < 8 hours.	D.1	---------- NOTE ------------ Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. -------------------------------	
		Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.	Immediately
	<u>AND</u>		
	D.2	Initiate action to establish secondary containment boundary.	Immediately
	<u>AND</u>		
			(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	D.3	Initiate action to isolate each secondary containment penetration flow path or verify it can be automatically or manually isolated from the control room.	Immediately
	<u>AND</u>		
	D.4	Initiate action to verify two standby gas treatment subsystems are capable of being placed in operation.	Immediately
E. Required Action and associated Completion Time of Condition C or D not met. <u>OR</u> DRAIN TIME < 1 hour.	E.1	Initiate action to restore DRAIN TIME to ≥ 36 hours.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify DRAIN TIME ≥ 36 hours.	12 hours
SR 3.5.2.2	Verify, for the required ECCS injection/spray subsystem, the suppression pool water level is ≥ -6.25 inches with or -7.25 inches without differential pressure control.	12 hours
SR 3.5.2.3	Verify, for the required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.2.4	Verify for the required ECCS injection/spray subsystem each 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.	31 days
SR 3.5.2.5	Operate the required ECCS injection/spray subsystem through the test return line for ≥ 10 minutes.	92 days
SR 3.5.2.6	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.5.2.7	-----------------------------NOTE----------------------------- Vessel injection/spray may be excluded. --- Verify the required ECCS injection/spray subsystem can be manually operated.	24 months

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCIC System inoperable.	A.1 Verify by administrative means High Pressure Coolant Injection System is OPERABLE.	Immediately
	AND	
	A.2 Restore RCIC System to OPERABLE status.	14 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	AND	
	B.2 Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

---NOTES---

1. Penetration flow paths except for 18 and 20 inch purge valve penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. --------------NOTE------------ Only applicable to penetration flow paths with two PCIVs. ---------------------------------- One or more penetration flow paths with one PCIV inoperable except due to MSIV leakage not within limits.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	4 hours except for main steam line AND 8 hours for main steam line
	AND		
			(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more penetration flow paths with MSIV leakage not within limits.	D.1 Restore leakage rate to within limit.	4 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	12 hours 36 hours

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable.	A.1 Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours

This page intentionally left blank.

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. <u>AND</u>	8 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	--------------NOTE------------ Isolation devices in high radiation areas may be verified by use of administrative means. --------------------------------- Verify the affected penetration flow path is isolated.	 Once per 31 days
B. --------------NOTE------------ Only applicable to penetration flow paths with two isolation valves. --------------------------------- One or more penetration flow paths with two SCIVs inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	C.2	Be in MODE 4.	36 hours

This page intentionally left blank.

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Three SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours
C. Two or three SGT subsystems inoperable.	C.1 Enter LCO 3.0.3.	Immediately

This page intentionally left blank.

This page intentionally left blank.

3.7 PLANT SYSTEMS

3.7.3 Control Room Emergency Ventilation (CREV) System

LCO 3.7.3 Two CREV subsystems shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREV subsystem inoperable for reasons other than Condition B, C, or D.	A.1	Restore CREV subsystem to OPERABLE status.	7 days
B. One or more CREV subsystems inoperable due to inoperable CRE boundary.	B.1	Initiate action to implement mitigating actions	Immediately
	<u>AND</u>		
	B.2	Verify mitigating actions ensure CRE occupant exposures to radiological hazards will not exceed limits, and verify the CRE occupants are protected from smoke and chemical hazards.	24 hours
	<u>AND</u>		
	B.3	Restore CRE boundary to OPERABLE status.	90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Two CREV subsystems inoperable due to inoperable High Efficiency Particulate Air (HEPA) filter or charcoal adsorbers which do not impact ability of CREV subsystems to meet flowrate requirements specified in the Ventilation Filter Testing Program (VFTP).	C.1	Restore HEPA filter and one charcoal adsorber to OPERABLE status.	7 days
D. One CREV subsystem inoperable due to inoperable charcoal adsorber which does not impact the ability of CREV subsystem to meet flowrate requirements specified in the VFTP.	D.1	Restore charcoal adsorber to OPERABLE status.	14 days
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	E.2	Be in MODE 4.	36 hours
F. Two CREV subsystems inoperable for reasons other than Condition B or C.	F.1	Enter LCO 3.0.3.	Immediately

This page intentionally left blank.

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Two Unit 1 and 2 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.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One Unit 1 and 2 control room AC subsystem inoperable.	A.1	Restore Unit 1 and 2 control room AC subsystem to OPERABLE status.	30 days

(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 or during CORE ALTERATIONS.	D.1 -------------NOTE------------- LCO 3.0.3 is not applicable. ---------------------------------	
	Place OPERABLE control room AC subsystem 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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One or more required Unit 1 and 2 DGs inoperable.	B.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	B.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	B.3 Initiate action to restore required Unit 1 and 2 DGs to OPERABLE status.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.2.1	-------------------------NOTE------------------------ The following SRs are not required to be performed: SR 3.8.1.2, SR 3.8.1.5, SR 3.8.1.7, and SR 3.8.1.8. --- For Unit 1 and 2 AC sources required to be OPERABLE, the SRs of Specification 3.8.1 are applicable, except SR 3.8.1.6 and SR 3.8.1.9.	In accordance with applicable SRs
SR 3.8.2.2	For the required Unit 3 DG, the SRs of Unit 3 Technical Specifications are applicable.	In accordance with applicable SRs

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to restore required DC electrical power subsystems or systems to OPERABLE status.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.4 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

Attachment 6 to CNL-19-010

Revised Technical Specification Pages (Unit 2 Clean)
(52 total pages)

TABLE OF CONTENTS

(continued)

TABLE OF CONTENTS (continued)

(continued)

TABLE OF CONTENTS (continued)

(continued)

TABLE OF CONTENTS (continued)

(continued)

TABLE OF CONTENTS (continued)

LIST OF TABLES

LIST OF FIGURES

1.1 Definitions (continued)

CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
DRAIN TIME	The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming: a. The water inventory above the TAF is divided by the limiting drain rate; b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetrate on flow paths below the TAF except: 1. Penetration flow path connected to an intact closed system, or isolated by manual or

(continued)

1.1 Definitions (continued)

DRAIN TIME (continued)

automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;

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

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

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

d. No additional draining events occur; and

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

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

INSERVICE TESTING PROGRAM

The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

(continued)

ACTIONS (continued)

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1	-------------NOTE------------- Only applicable for Functions 1.c, 1.e, 2.c, 2.d, and 2.f. ---------------------------------- Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for features in both divisions
	<u>AND</u>		
	C.2	Restore channel to OPERABLE status.	24 hours
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1	--------------NOTE------------ Only applicable if HPCI pump suction is not aligned to the suppression pool. ---------------------------------- Declare HPCI System inoperable.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1	-------------NOTE------------ Only applicable for Function 1.d. -----------------------------------	
		Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	<u>AND</u>		
	E.2	Restore channel to OPERABLE status.	7 days

(continued)

Table 3.3.5.1-1 (page 1 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low Low, Level 1(e)	1,2,3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure - High(e)	1,2,3	4(b)	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive and ECCS Initiation)(e)	1,2,3	4(b) 2 per trip system	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig
d. Core Spray Pump Discharge Flow - Low (Bypass)	1,2,3	2 1 per subsystem	E	SR 3.3.5.1.2 SR 3.3.5.1.5	≥ 1647 gpm and ≤ 2910 gpm
e. Core Spray Pump Start - Time Delay Relay					
Pumps A,B,C,D (with diesel power)	1,2,3	4 1 per pump	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump A (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds

(continued)

(a) Deleted.

(b) Channels affect Common Accident Signal Logic. Refer to LCO 3.8.1, "AC Sources - Operating."

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System (continued)					
e. Core Spray Pump Start - Time Delay Relay (continued)					
Pump C (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level - Low Low Low, Level 1(e)	1,2,3	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure - High(e)	1,2,3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive and ECCS Initiation)(e)	1,2,3	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig

(continued)

(a) Deleted.

(b) Deleted.

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
d. Reactor Steam Dome Pressure - Low (Recirculation Discharge Valve Permissive)(e)	1(c),2(c), 3(c)	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 215 psig and ≤ 245 psig
e. Reactor Vessel Water Level - Level 0	1,2,3	2 1 per subsystem	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 312 5/16 inches above vessel zero
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay					
Pump A,B,C,D (with diesel power)	1,2,3	4	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump A (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump C (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds

(continued)

(a) Deleted.

(c) With associated recirculation pump discharge valve open.

(e) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

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

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

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

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

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	1 per subsystem[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
b. Core Spray Pump Discharge Flow - Low (Bypass)	4, 5	1 per subsystem[(a)]	D	SR 3.3.5.2.2	≥ 1647 gpm and ≤ 2910 gpm
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	2 in one trip system[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
3. Shutdown Cooling System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "Reactor Pressure Vessel Water Inventory Control."

(b) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.5.3 Reactor Core Isolation Cooling (RCIC) System Instrumentation

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

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

ACTIONS

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

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	C.1 Restore channel to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition B or C not met.	D.1 Declare RCIC System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.3.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.3.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.3.3	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.3.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

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

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2(a)	4	B	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.4	≥ 470 inches above vessel zero
2. Reactor Vessel Water Level - High, Level 8	2	C	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.4	≤ 583 inches above vessel zero

(a) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1	Declare standby liquid control system (SLC) inoperable.	1 hour
	OR		
	H.2	Isolate the Reactor Water Cleanup System.	1 hour
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1	Initiate action to restore channel to OPERABLE status.	Immediately

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Main Steam Valve Vault Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 188°F
b. Pipe Trench Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 135°F
c. Pump Room A Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
d. Pump Room B Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
e. Heat Exchanger Room Area (West Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 143°F
f. Heat Exchanger Room Area (East Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 170°F
g. SLC System Initiation	1,2,3	1[(a)]	H	SR 3.3.6.1.6	NA
h. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 115 psig
b. Reactor Vessel Water Level - Low, Level 3	3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
c. Drywell Pressure - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 2.5 psig

(a) One SLC System Initiation signal provides logic input to close both RWCU valves.

(b) Deleted.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Ventilation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	B	SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
5. Control Room Air Supply Duct Radiation - High	1,2,3	1	D	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 270 cpm above background

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. OR One low pressure coolant injection (LPCI) pump in both LPCI subsystems inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days[(1)]

(continued)

[(1)] - This Completion Time may be extended to 14 days on a one-time basis. This temporary approval expires June 1, 2005.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control

LCO 3.5.2 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

AND

One low pressure ECCS injection/spray subsystem shall be OPERABLE.

------------------------------------NOTE------------------------------------
A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODES 4 and 5.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Required ECCS injection/spray subsystem inoperable.	A.1	Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. DRAIN TIME < 36 hours and ≥ 8 hours.	C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.	4 hours
	AND	
	C.2 Verify each secondary containment penetration flow path is capable of being isolated inless than the DRAIN TIME.	4 hours
	AND	
	C.3 Verify two standby gas treatment subsystems are capable of being placed in operation in less than the DRAIN TIME.	4 hours
D. DRAIN TIME < 8 hours.	D.1 ------------NOTE------------- Required ECCS injections/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. ----------------------------------	
	Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.	Immediately
	AND	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	D.2	Initiate action to establish secondary containment boundary.	Immediately
	AND		
	D.3	Initiate action to isolate each secondary containment penetration flow path or verify it can be automatically or manually isolated from the control room.	Immediately
	AND		
	D.4	Initiate action to verify two standby gas treatment subsysems are capable of being placed in operation.	Immediately
E. Required Action and associated Completion Time of Condition C or D not met. OR DRAIN TIME < 1 hour.	E.1	Initiate action to restore DRAIN TIME to ≥ 36 hours.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.2.1	Verify DRAIN TIME ≥ 36 hours.	12 hours
SR 3.5.2.2	Verify, for the required ECCS injection/spray subsystem, the suppression pool water level is ≥ -6.25 inches with or -7.25 inches without differential pressure control.	12 hours
SR 3.5.2.3	Verify, for the required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.2.4	Verify for the required ECCS injection/spray subsystem each 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.	31 days
SR 3.5.2.5	Operate the required ECCS injection/spray subsystem through the test return line for ≥ 10 minutes.	92 days
SR 3.5.2.6	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.5.2.7	-----------------------------NOTE---------------------------- Vessel injection/spray may be excluded. --- Verify the required ECCS injection/spray subsystem can be manually operated.	24 months

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RCIC System inoperable.	A.1	Verify by administrative means High Pressure Coolant Injection System is OPERABLE.	Immediately
	AND		
	A.2	Restore RCIC System to OPERABLE status.	14 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTES-----

1. Penetration flow paths except for 18 and 20 inch purge valve penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. --------------NOTE------------ Only applicable to penetration flow paths with two PCIVs. --------------------------------- One or more penetration flow paths with one PCIV inoperable except due to MSIV leakage not within limits.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	4 hours except for main steam line AND 8 hours for main steam line (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more penetration flow paths with MSIV leakage not within limits.	D.1	Restore leakage rate to within limit.	4 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1	Be in MODE 3.	12 hours
	AND		
	E.2	Be in MODE 4.	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.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable.	A.1 Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

This page intentionally left blank.

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTES-----

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	8 hours
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	---------------NOTE------------ Isolation devices in high radiation areas may be verified by use of administrative means. ---------------------------------- Verify the affected penetration flow path is isolated.	 Once per 31 days
B. ---------------NOTE------------ Only applicable to penetration flow paths with two isolation valves. --------------------------------- One or more penetration flow paths with two SCIVs inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	C.2	Be in MODE 4.	36 hours

This page intentionally left blank.

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Three SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours
C. Two or three SGT subsystems inoperable.	C.1 Enter LCO 3.0.3.	Immediately

This page intentionally left blank.

This page intentionally left blank.

3.7 PLANT SYSTEMS

3.7.3 Control Room Emergency Ventilation (CREV) System

LCO 3.7.3 Two CREV subsystems shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREV subsystem inoperable for reasons other than Condition B, C, or D.	A.1	Restore CREV subsystem to OPERABLE status.	7 days
B. One or more CREV subsystems inoperable due to inoperable CRE boundary.	B.1	Initiate action to implement mitigating actions	Immediately
	<u>AND</u>		
	B.2	Verify mitigating actions ensure CRE occupant exposures to radiological hazards will not exceed limits, and verify the CRE occupants are protected from smoke and chemical hazards.	24 hours
	<u>AND</u>		
	B.3	Restore CRE boundary to OPERABLE status.	90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Two CREV subsystems inoperable due to inoperable High Efficiency Particulate Air (HEPA) filter or charcoal adsorbers which do not impact ability of CREV subsystems to meet flowrate requirements specified in the Ventilation Filter Testing Program (VFTP).	C.1	Restore HEPA filter and one charcoal adsorber to OPERABLE status.	7 days
D. One CREV subsystem inoperable due to inoperable charcoal adsorber which does not impact the ability of CREV subsystem to meet flowrate requirements specified in the VFTP.	D.1	Restore charcoal adsorber to OPERABLE status.	14 days
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	E.2	Be in MODE 4.	36 hours
F. Two CREV subsystems inoperable for reasons other than Condition B or C.	F.1	Enter LCO 3.0.3.	Immediately

This page intentionally left blank.

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Two Unit 1 and 2 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.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Unit 1 and 2 control room AC subsystem inoperable.	A.1 Restore Unit 1 and 2 control room AC subsystem to OPERABLE status.	30 days

(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 or during CORE ALTERATIONS.	D.1 --------------NOTE------------- LCO 3.0.3 is not applicable. ---------------------------------- Place OPERABLE control room AC subsystem 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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One or more required Unit 1 and 2 DGs inoperable.	B.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	B.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	B.3 Initiate action to restore required Unit 1 and 2 DGs to OPERABLE status.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.2.1	---------------------------NOTE-------------------------- The following SRs are not required to be performed: SR 3.8.1.2, SR 3.8.1.5, SR 3.8.1.7, and SR 3.8.1.8. --- For Unit 1 and 2 AC sources required to be OPERABLE, the SRs of Specification 3.8.1 are applicable, except SR 3.8.1.6 and SR 3.8.1.9.	 In accordance with applicable SRs
SR 3.8.2.2	For the required Unit 3 DG, the SRs of Unit 3 Technical Specifications are applicable.	In accordance with applicable SRs

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to restore required DC electrical power subsystems or systems to OPERABLE status.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.4 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

Attachment 7 to CNL-19-010

Revised Technical Specification Pages (Unit 3 Clean)
(50 total pages)

TABLE OF CONTENTS (continued)

(continued)

TABLE OF CONTENTS (continued)

(continued)

TABLE OF CONTENTS (continued)

(continued)

LIST OF TABLES

LIST OF FIGURES

1.1 Definitions (continued)

CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."

DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

a. The water inventory above the TAF is divided by the limiting drain rate;

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

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

(continued)

1.1 Definitions (continued)

DRAIN TIME (continued)

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

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

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

d. No additional draining events occur; and

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

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

INSERVICE TESTING PROGRAM

The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

(continued)

ACTIONS (continued)

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1	--------------NOTE------------- Only applicable for Functions 1.c, 1.e, 2.c, 2.d, and 2.f. ----------------------------------	
		Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for features in both divisions
	<u>AND</u>		
	C.2	Restore channel to OPERABLE status.	24 hours
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1	--------------NOTE------------ Only applicable if HPCI pump suction is not aligned to the suppression pool. ----------------------------------	
		Declare HPCI System inoperable.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1	-------------NOTE------------ Only applicable for Function 1.d. ---------------------------------- Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	AND		
	E.2	Restore channel to OPERABLE status.	7 days

(continued)

Table 3.3.5.1-1 (page 1 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level — Low Low Low, Level 1[(f)]	1,2,3	4[(b)]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure — High[(f)]	1,2,3	4[(b)]	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure — Low (Injection Permissive and ECCS Initiation)[(f)]	1,2,3	4[(b)] 2 per trip system	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig
d. Core Spray Pump Discharge Flow — Low (Bypass)	1,2,3	2 1 per subsystem	E	SR 3.3.5.1.2 SR 3.3.5.1.5	≥ 1647 gpm and ≤ 2910 gpm
e. Core Spray Pump Start — Time Delay Relay					
Pumps A,B,C,D (with diesel power)	1,2,3	4 1 per pump	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump A (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds

(continued)

(a) Deleted.

(b) Channels affect Common Accident Signal Logic. Refer to LCO 3.8.1, "AC Sources - Operating."

(f) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System (continued)					
e. Core Spray Pump Start — Time Delay Relay (continued)					
Pump C (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level — Low Low Low, Level 1[(f)]	1,2,3	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 398 inches above vessel zero
b. Drywell Pressure — High[(f)]	1,2,3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.5 psig
c. Reactor Steam Dome Pressure — Low (Injection Permissive and ECCS Initiation)[(f)]	1,2,3	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 435 psig and ≤ 465 psig

(continued)

(a) Deleted.

(b) Deleted.

(f) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
d. Reactor Steam Dome Pressure — Low (Recirculation Discharge Valve Permissive)(f)	1(c),2(c), 3(c)	4	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 215 psig and ≤ 245 psig
e. Reactor Vessel Water Level — Level 0	1,2,3	2 1 per subsystem	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 312 5/16 inches above vessel zero
f. Low Pressure Coolant Injection Pump Start — Time Delay Relay					
Pump A,B,C,D (with diesel power)	1,2,3	4	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump A (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 0 seconds and ≤ 1 second
Pump B (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 6 seconds and ≤ 8 seconds
Pump C (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 12 seconds and ≤ 16 seconds
Pump D (with normal power)	1,2,3	1	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 18 seconds and ≤ 24 seconds

(continued)

(a) Deleted.

(c) With associated recirculation pump discharge valve open.

(f) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

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

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

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

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

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	1 per subsystem[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
b. Core Spray Pump Discharge Flow - Low (Bypass)	4, 5	1 per subsystem[(a)]	D	SR 3.3.5.2.2	≥ 1647 gpm and ≤ 2910 gpm
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Steam Dome Pressure - Low (Injection Permissive)	4, 5	2 in one trip system[(a)]	C	SR 3.3.5.2.1 SR 3.3.5.2.2	≤ 465 psig
3. Shutdown Cooling System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Reactor Vessel Water Level - Low, Level 3	(b)	1 per trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 528 inches above vessel zero

(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "Reactor Pressure Vessel Water Inventory Control."

(b) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

3.3 INSTRUMENTATION

3.3.5.3 Reactor Core Isolation Cooling (RCIC) System Instrumentation

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

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

ACTIONS

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

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table 3.3.5.3-1.	C.1 Restore channel to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition B or C not met.	D.1 Declare RCIC System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.5.3-1 to determine which SRs apply for each RCIC Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Function 2 and (b) for up to 6 hours for Function 1 provided the associated Function maintains RCIC initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.3.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.3.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.3.3	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.3.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

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

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2[(a)]	4	B	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.4	≥ 470 inches above vessel zero
2. Reactor Vessel Water Level - High, Level 8	2	C	SR 3.3.5.3.1 SR 3.3.5.3.2 SR 3.3.5.3.3 SR 3.3.5.3.4	≤ 583 inches above vessel zero

(a) During instrument calibrations, if the As Found channel setpoint is conservative with respect to the Allowable Value but outside its acceptable As Found band as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. If the As Found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Prior to returning a channel to service, the instrument channel setpoint shall be calibrated to a value that is within the acceptable As Left tolerance of the setpoint; otherwise, the channel shall be declared inoperable.

The nominal Trip Setpoint shall be specified on design output documentation which is incorporated by reference in the Updated Final Safety Analysis Report. The methodology used to determine the nominal Trip Setpoint, the predefined As Found Tolerance, and the As Left Tolerance band, and a listing of the setpoint design output documentation shall be specified in Chapter 7 of the Updated Final Safety Analysis Report.

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1	Declare standby liquid control system (SLC) inoperable.	1 hour
	OR		
	H.2	Isolate the Reactor Water Cleanup System.	1 hour
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1	Initiate action to restore channel to OPERABLE status.	Immediately

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Main Steam Valve Vault Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 201°F
b. Pipe Trench Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 135°F
c. Pump Room A Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
d. Pump Room B Area Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 152°F
e. Heat Exchanger Room Area (West Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 143°F
f. Heat Exchanger Room Area (East Wall) Temperature - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 170°F
g. SLC System Initiation	1,2,3	1[(a)]	H	SR 3.3.6.1.6	NA
h. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
6. Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 115 psig
b. Reactor Vessel Water Level - Low, Level 3	3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 528 inches above vessel zero
c. Drywell Pressure - High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 2.5 psig

(a) One SLC System Initiation signal provides logic input to close both RWCU valves.

(b) Deleted.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3	1	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 100 mR/hr

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Ventilation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≥ 528 inches above vessel zero
2. Drywell Pressure - High	1,2,3	2	B	SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 2.5 psig
3. Reactor Zone Exhaust Radiation - High	1,2,3	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
4. Refueling Floor Exhaust Radiation - High	1,2,3	1	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.5 SR 3.3.7.1.6	≤ 100 mR/hr
5. Control Room Air Supply Duct Radiation - High	1,2,3	1	D	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 270 cpm above background

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. <u>OR</u> One low pressure coolant injection (LPCI) pump in both LPCI subsystems inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control

LCO 3.5.2 DRAIN TIME of RPV water inventory to the top of active fuel (TAF) shall be ≥ 36 hours.

<u>AND</u>

One low pressure ECCS injection/spray subsystem shall be OPERABLE.

-----NOTE-----
A Low Pressure Coolant Injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODES 4 and 5.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Required ECCS injection/spray subsystem inoperable.	A.1	Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Initiate action to establish a method of water injection capable of operating without offsite electrical power.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. DRAIN TIME < 36 hours and ≥ 8 hours.	C.1	Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.	4 hours
	AND		
	C.2	Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
	AND		
	C.3	Verify two standby gas treatment subsystems are capable of being placed in operation in less than the DRAIN TIME.	4 hours
D. DRAIN TIME < 8 hours.	D.1	---------- NOTE ------------ Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. -------------------------------	
		Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level > TAF for ≥ 36 hours.	Immediately
	AND		(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	D.2	Initiate action to establish secondary containment boundary.	Immediately
	<u>AND</u>		
	D.3	Initiate action to isolate each secondary containment penetration flow path or verify it can be automatically or manually isolated from the control room.	Immediately
	<u>AND</u>		
	D.4	Initiate action to verify two standby gas treatment subsystems are capable of being placed in operation.	Immediately
E. Required Action and associated Completion Time of Condition C or D not met. <u>OR</u> DRAIN TIME < 1 hour.	E.1	Initiate action to restore DRAIN TIME to ≥ 36 hours.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.2.1	Verify DRAIN TIME ≥ 36 hours.	12 hours
SR 3.5.2.2	Verify, for the required ECCS injection/spray subsystem, the suppression pool water level is ≥ -6.25 inches with or -7.25 inches without differential pressure control.	12 hours
SR 3.5.2.3	Verify, for the required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.2.4	Verify for the required ECCS injection/spray subsystem each 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.	31 days
SR 3.5.2.5	Operate the required ECCS injection/spray subsystem through the test return line for ≥ 10 minutes.	92 days
SR 3.5.2.6	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.5.2.7	------------------------------NOTE------------------------------ Vessel injection/spray may be excluded. --- Verify the required ECCS injection/spray subsystem can be manually operated.	24 months

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

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

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RCIC System inoperable.	A.1	Verify by administrative means High Pressure Coolant Injection System is OPERABLE.	Immediately
	<u>AND</u>		
	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
	<u>AND</u>		
	B.2	Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

--NOTES--

1. Penetration flow paths except for 18 and 20 inch purge valve penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. --------------NOTE------------ Only applicable to penetration flow paths with two PCIVs. --------------------------------- One or more penetration flow paths with one PCIV inoperable except due to MSIV leakage not within limits.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	4 hours except for main steam line <u>AND</u> 8 hours for main steam line
	<u>AND</u>		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more penetration flow paths with MSIV leakage not within limits.	D.1 Restore leakage rate to within limit.	4 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	12 hours 36 hours

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable.	A.1 Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours 36 hours

This page intentionally left blank.

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

---NOTES---

1. Penetration flow paths may be unisolated intermittently under administrative controls.

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

3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	8 hours
	<u>AND</u>		

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 ---------------NOTE------------- Isolation devices in high radiation areas may be verified by use of administrative means. ----------------------------------- Verify the affected penetration flow path is isolated.	 Once per 31 days
B. ---------------NOTE------------- Only applicable to penetration flow paths with two isolation valves. ----------------------------------- One or more penetration flow paths with two SCIVs inoperable.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

This page intentionally left blank.

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Three SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours
C. Two or three SGT subsystems inoperable.	C.1 Enter LCO 3.0.3.	Immediately

This page intentionally left blank.

This page intentionally left blank.

3.7 PLANT SYSTEMS

3.7.3 Control Room Emergency Ventilation (CREV) System

LCO 3.7.3 Two CREV subsystems shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREV subsystem inoperable for reasons other than Condition B, C, or D.	A.1 Restore CREV subsystem to OPERABLE status.	7 days
B. One or more CREV subsystems inoperable due to inoperable CRE boundary.	B.1 Initiate action to implement mitigating actions	Immediately
	<u>AND</u>	
	B.2 Verify mitigating actions ensure CRE occupant exposures to radiological hazards will not exceed limits, and verify the CRE occupants are protected from smoke and chemical hazards.	24 hours
	<u>AND</u>	
	B.3 Restore CRE boundary to OPERABLE status.	90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Two CREV subsystems inoperable due to inoperable High Efficiency Particulate Air (HEPA) filter or charcoal adsorbers which do not impact ability of CREV subsystems to meet flowrate requirements specified in the Ventilation Filter Testing Program (VFTP).	C.1	Restore HEPA filter and one charcoal adsorber to OPERABLE status.	7 days
D. One CREV subsystem inoperable due to inoperable charcoal adsorber which does not impact the ability of CREV subsystem to meet flowrate requirements specified in the VFTP.	D.1	Restore charcoal adsorber to OPERABLE status.	14 days
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	E.2	Be in MODE 4.	36 hours
F. Two CREV subsystems inoperable for reasons other than Condition B or C.	F.1	Enter LCO 3.0.3.	Immediately

This page intentionally left blank.

3.7 PLANT SYSTEMS

3.7.4 Control Room Air Conditioning (AC) System

LCO 3.7.4 Two Unit 3 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.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One Unit 3 control room AC subsystem inoperable.	A.1	Restore Unit 3 control room AC subsystem to OPERABLE status.	30 days

(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 or during CORE ALTERATIONS.	D.1 --------------NOTE------------- LCO 3.0.3 is not applicable. --------------------------------- Place OPERABLE control room AC subsystem 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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One or more required Unit 3 DGs inoperable.	B.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	B.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u>	
	B.3 Initiate action to restore required Unit 3 DGs to OPERABLE status.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	-------------------------NOTE------------------------- The following SRs are not required to be performed: SR 3.8.1.2, SR 3.8.1.5, SR 3.8.1.7, and SR 3.8.1.8. --- For Unit 3 AC sources required to be OPERABLE, the SRs of Specification 3.8.1 are applicable, except for SR 3.8.1.6 and SR 3.8.1.9.	In accordance with applicable SRs
SR 3.8.2.2	For the required Unit 1 and 2 DG, the SRs of Unit 1 and 2 Technical Specifications are applicable.	In accordance with applicable SRs

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to restore required DC electrical power subsystems or systems to OPERABLE status.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate actions to restore required AC and DC electrical power distribution subsystems to OPERABLE status. AND A.2.4 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately Immediately

Attachment 8 to CNL-19-010

Proposed Technical Specification Bases Changes (Unit 1 Mark-up)
(Information only)
(93 total pages)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY	1.a, 2.a. Reactor Vessel Water Level - Low Low Low, Level 1 (LS-3-58A-D) (continued)

The Reactor Vessel Water Level - Low Low Low, Level 1 Allowable Value is chosen to allow time for the low pressure injection/spray subsystems to activate and provide adequate cooling.

Four channels of Reactor Vessel Water Level - Low Low Low, Level 1 Function are only required to be OPERABLE when the ECCS is required to be OPERABLE to ensure that no single instrument failure can preclude ECCS initiation. ~~Refer to LCO 3.5.1 and LCO 3.5.2, "ECCS – Shutdown," for Applicability Bases for the low pressure ECCS subsystems.~~

For this instrument function, the nominal trip setpoint including the as-left tolerances is defined as the LSSS. The acceptable as-found band is based on a statistical combination of possible measurable uncertainties (i.e., setting tolerance, drift, temperature effects, and measurement and test equipment). During instrument calibrations, if the as-found setpoint is found to be conservative with respect to the Allowable Value, but outside its acceptable as-found band (tolerance range), as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. The technician performing the Surveillance will evaluate the instrument's ability to maintain a stable setpoint within the as-left tolerance. The technician's evaluation will be reviewed by on shift personnel during the approval of the Surveillance data prior to returning the channel back to service at the completion of the Surveillance. This shall constitute the initial determination of operability. If a channel is found to exceed the channel's Allowable Value or cannot be reset within the

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1.c, 2.c. Reactor Steam Dome Pressure - Low (Injection Permissive and ECCS Initiation)
(PIS-3-74A and B; PIS-68-95 and 96) (continued)

channel's as-found condition will be documented in the Corrective Action Program. As part of the activities of the Corrective Action Program, additional evaluations and potential corrective actions will be performed as necessary to ensure that any as-found setting, which is conservative to the Allowable Value, but outside the acceptable as-found band is evaluated for long-term reliability trends.

Four channels of Reactor Steam Dome Pressure - Low Function are only required to be OPERABLE when the ECCS is required to be OPERABLE to ensure that no single instrument failure can preclude ECCS initiation. ~~Refer to LCO 3.5.1 and LCO 3.5.2 for Applicability Bases for the low pressure ECCS subsystems.~~

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

1.d. Core Spray Pump Discharge Flow - Low (Bypass) (FS-75-21 and 49)

The minimum flow instruments are provided to protect the associated CS pumps from overheating when the pump is operating and the associated injection valve is not fully open. The minimum flow line valve is opened when low flow is sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump. The CS Pump Discharge Flow - Low Function is assumed to be OPERABLE and capable of closing the minimum flow valves to ensure that the CS flows assumed during the transients and accidents analyzed in References 1, 2, and 3 are met. The core cooling function of the ECCS, along with the scram action of the RPS, ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46.

One flow switch per CS subsystem is used to detect the associated subsystems' flow rates. The logic is arranged such that each flow switch causes its associated minimum flow valve to open. The logic will close the minimum flow valve once the closure setpoint is exceeded. The Pump Discharge Flow - Low Allowable Values are high enough to ensure that the pump flow rate is sufficient to protect the pump, yet low enough (based on engineering judgment) to ensure that the closure of the minimum flow valve is initiated to allow full flow into the core.

Each channel of Pump Discharge Flow - Low Function (two CS channels) is only required to be OPERABLE when the associated ECCS is required to be OPERABLE to ensure that no single instrument failure can preclude the ECCS function. ~~Refer to LCO 3.5.1 and LCO 3.5.2 for Applicability Bases for the low pressure ECCS subsystems.~~

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1.e, 2.f. Core Spray and Low Pressure Coolant Injection Pump Start - Time Delay Relay (continued)

Each CS and LPCI Pump Start - Time Delay Relay Function is required to be OPERABLE only when the associated CS and LPCI subsystems are required to be OPERABLE. ~~Refer to LCO 3.5.1 and LCO 3.5.2 for Applicability Bases for the CS and LPCI subsystems.~~

(continued)

BASES

ACTIONS

B.1, B.2, and B.3 (continued)

subsystems) are inoperable and untripped, and the Completion Times started concurrently for the channels in both subsystems, this results in the affected portions in the associated low pressure ECCS being concurrently declared inoperable.

For Required Action B.2, automatic HPCI initiation capability is lost if two or more Function 3.a or two or more Function 3.b channels are inoperable and untripped such that the trip system loses initiation capability. In this situation (loss of automatic HPCI initiation capability), the 24 hour allowance of Required Action B.3 is not appropriate and the HPCI System must be declared inoperable within 1 hour. ~~As noted (Note 1 to Required Action B.1), Required Action B.1 is only applicable in MODES 1, 2, and 3. In MODES 4 and 5, the specific initiation time of the low pressure ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of initiation capability for 24 hours (as allowed by Required Action B.3) is allowed during MODES 4 and 5. There is no similar Note provided for Required Action B.2 since HPCI instrumentation is not required in MODES 4 and 5; thus, a Note is not necessary.~~

Notes are ~~also~~ provided (the Note ~~2~~ to Required Action B.1 and the Note to Required Action B.2) to delineate which Required Action is applicable for each Function that requires entry into Condition B if an associated channel is inoperable. This ensures that the proper loss of initiation capability check is performed. Required Action B.1 (the Required Action for certain inoperable channels in the low pressure ECCS subsystems) is not applicable to Function 2.e, since this Function provides backup to administrative controls ensuring that operators do not divert LPCI flow from injecting into the core when needed. Thus, a total loss of Function 2.e capability for 24 hours is allowed, since the LPCI subsystems remain capable of performing their intended function.

(continued)

BASES

ACTIONS (continued)

C.1 and C.2

Required Action C.1 is intended to ensure that appropriate actions are taken if multiple, inoperable channels within the same Function result in redundant automatic initiation capability being lost for the feature(s). Required Action C.1 features would be those that are initiated by Functions 1.c, 2.c, 1.e, 2.d, and 2.f (i.e., low pressure ECCS). Redundant automatic initiation capability is lost if either (a) four Function 1.c channels are inoperable (i.e., both channels in both trip systems are inoperable), (b) two or more Function 2.c channels are inoperable such that both trip systems lose initiation capability, (c) two or more Function 2.d channels are inoperable such that both trip systems lose initiation capability, (d) one or more Function 1.e channels are inoperable in both trip systems (i.e., at least one CS pump in both subsystems is affected), or (e) multiple Function 2.f channels are inoperable such that the trip systems cannot start both LPCI pumps in at least one subsystem. In this situation (loss of redundant automatic initiation capability), the 24 hour allowance of Required Action C.2 is not appropriate and the feature(s) associated with the inoperable channels must be declared inoperable within 1 hour. Since each inoperable channel would have Required Action C.1 applied separately (refer to ACTIONS Note), each inoperable channel would only require the affected portion of the associated system to be declared inoperable. However, since channels for both low pressure ECCS subsystems are inoperable (e.g., both CS subsystems), and the Completion Times started concurrently for the channels in both subsystems, this results in the affected portions in both subsystems being concurrently declared inoperable. For Functions 1.c, 2.c, 1.e, 2.d, and 2.f, the affected portions are the associated low pressure ECCS pumps. ~~As noted (Note 1), Required Action C.1 is only applicable in MODES 1, 2, and 3.~~

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

~~In MODES 4 and 5, the specific initiation time of the ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of automatic initiation capability for 24 hours (as allowed by Required Action C.2) is allowed during MODES 4 and 5.~~

The Note ~~2~~ states that Required Action C.1 is only applicable for Functions 1.c, 2.c, 1.e, 2.d, and 2.f. Required Action C.1 is also not applicable to Function 3.c (which also requires entry into this Condition if a channel in this Function is inoperable). The loss of one Function 3.c channel results in a loss of the Function (two-out-of-two logic). This loss was considered during the development of Reference 4 and considered acceptable for the 24 hours allowed by Required Action C.2.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action C.1, the Completion Time only begins upon discovery that redundant features in the same system (e.g., both CS subsystems) cannot be automatically initiated due to inoperable channels within the same Function as described in the paragraph above. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration of channels.

(continued)

BASES

ACTIONS (continued)

E.1 and E.2

Required Action E.1 is intended to ensure that appropriate actions are taken if multiple, inoperable channels within the Core Spray Pump Discharge Flow - Low Bypass Function results in redundant automatic initiation capability being lost for the feature(s). Automatic initiation capability of the Core Spray Pump Discharge Flow - Low (Bypass) Function in both CS subsystems is lost if two Function 1.d channels are inoperable. In this situation (loss of capability for both subsystems), the 7 day allowance of Required Action E.2 is not appropriate and the subsystem associated with each inoperable channel must be declared inoperable within 1 hour. Since each inoperable channel would have Required Action E.1 applied separately (refer to ACTIONS Note), each inoperable channel would only require the affected CS pump to be declared inoperable. However, since channels for both CS subsystems are inoperable, and the completion times started concurrently for both channels this results in all four CS pumps being concurrently declared inoperable. ~~As noted (Note 1 to Required Action E.1), Required Action E.1 is only applicable in MODES 1, 2, and 3. In MODES 4 and 5, the specific initiation time of the ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of initiation capability for 7 days (as allowed by Required Action E.2) is allowed during MODES 4 and 5.~~ A Note is ~~also~~ provided (the Note ~~2~~ to Required Action E.1) to delineate that Required Action E.1 is only applicable to Function 1.d. Required Action E.1 is not applicable to HPCI Function 3.f since the loss of one channel results in a loss of the Function (one-out-of-one logic). This loss was considered during the development of Reference 4 and considered acceptable for the 7 days allowed by Required Action E.2.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock."

(continued)

B 3.3 INSTRUMENTATION

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

BASES

BACKGROUND

The RPV contains penetrations below the top of the active fuel (TAF) that have the potential to drain the reactor coolant inventory to below the TAF. If the water level should drop below the TAF, the ability to remove decay heat is reduced, which could lead to elevated cladding temperatures and clad perforation. Safety Limit 2.1.1.3 requires the RPV water level to be above the top of active irradiated fuel at all times to prevent such elevated cladding temperatures.

Technical Specifications are required by 10 CFR 50.36 to include limiting safety system settings (LSSS) for variables that have significant safety functions. LSSS are defined by the regulation as "Where a LSSS is specified for a variable on which a safety limit has been placed, the setting must be chosen so that automatic protective actions will correct the abnormal situation before a Safety Limit (SL) is exceeded." The Analytical Limit is the limit of the process variable at which a safety action is initiated to ensure that a SL is not exceeded. Any automatic protection action that occurs on reaching the Analytical Limit therefore ensures that the SL is not exceeded. However, in practice, the actual settings for automatic protection channels must be chosen to be more conservative than the Analytical Limit to account for instrument loop uncertainties related to the setting at which the automatic protective action would actually occur. The actual settings for the automatic isolation channels are the same as those established for the same functions in MODES 1, 2, and 3 in LCO 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation," or LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

With the unit in MODE 4 or 5, RPV water inventory control is not required to mitigate any events or accidents evaluated in the safety analyses. RPV water inventory control is required in

(continued)

BASES

BACKGROUND (continued)	MODES 4 and 5 to protect Safety Limit 2.1.1.3 and the fuel cladding barrier to prevent the release of radioactive material should a draining event occur. Under the definition of DRAIN TIME, some penetration flow paths may be excluded from the DRAIN TIME calculation if they will be isolated by valves that will close automatically without offsite power prior to the RPV water level being the TAF when actuated by RPV water level isolation instrumentation. The purpose of the RPV Water Inventory Control Instrumentation is to support the requirements of LCO 3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control," and the definition of DRAIN TIME. There are functions that are required for manual operation of the ECCS injection/spray subsystem required to be OPERABLE by LCO 3.5.2 and other functions that support automatic isolation of the Residual Heat Removal (RHR) Shutdown Cooling system and Reactor Water Cleanup system penetration flow path(s) on low RPV water level. The RPV Water Inventory Control Instrumentation supports operation of core spray (CS) and low pressure coolant injection (LPCI). The equipment involved with each of these systems is described in the Bases for LCO 3.5.2.
APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY	With the unit in MODE 4 or 5, RPV water inventory control is not required to mitigate any events or accidents evaluated in the safety analyses. RPV water inventory control is required in MODES 4 and 5 to protect Safety Limit 2.1.1.3 and the fuel cladding barrier to prevent the release of radioactive material should a draining event occur. A double-ended guillotine break of the Reactor Coolant System (RCS) is not postulated in MODES 4 and 5 due to the reduced RCS pressure, reduced piping stresses, and ductile piping systems. Instead, an event is postulated in which a single operator error or initiating event allows draining of the RPV water inventory through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

(e.g., seismic event, loss of normal power, single human error). It is assumed, based on engineering judgment, that while in MODES 4 and 5, one low pressure ECCS injection/spray subsystem can be manually started to maintain adequate reactor vessel water level.

As discussed in References 1, 2, 3, 4, and 5, operating experience has shown RPV water inventory to be significant to public health and safety. Therefore, RPV Water Inventory Control satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

Permissive and interlock setpoints are generally considered as nominal values without regard to measurement accuracy.

The specific Applicable Safety Analyses, LCO, and Applicability discussions are listed below on a Function by Function basis.

Core Spray and Low Pressure Coolant Injection Systems

1.a, 2.a. Reactor Steam Dome Pressure - Low (Injection Permissive)

Low reactor steam dome pressure signals are used as permissives for the low pressure ECCS injection/spray subsystems. This function ensures that, prior to opening the injection valves of the low pressure ECCS subsystems, the reactor pressure has fallen to a value below these subsystems' maximum design pressure. While it is assured during MODES 4 and 5 that the reactor steam dome pressure will be below the ECCS maximum design pressure, the Reactor Steam Dome Pressure - Low signals are assumed to be OPERABLE and capable of permitting injection valve opening as part of a manual start of the ECCS.

The Core Spray System Reactor Steam Dome Pressure - Low signals are initiated from two pressure transmitters per subsystem that sense reactor steam dome pressure. The transmitters for each subsystem are connected to two trip units. The outputs of the trip units are connected to relays whose contacts are arranged in a one-out-of-two logic. While four

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)	channels are available, only a single channel per subsystem is required to be OPERABLE. The Low Pressure Coolant Injection System Reactor Steam Dome Pressure - Low signals are initiated from four pressure transmitters (two channels in two trip systems) that sense reactor steam dome pressure. Either trip system can fulfill the function with a two-out-of-two logic. Therefore, two channels in one trip system are required to be OPERABLE. The Allowable Value is low enough to prevent overpressuring the equipment in the low pressure ECCS. The channels of Reactor Steam Dome Pressure - Low Function are required to be OPERABLE in MODES 4 and 5 when the ECCS subsystem is required to be OPERABLE by LCO 3.5.2. 1.b Core Spray Pump Discharge Flow - Low (Bypass) The minimum flow instruments are provided to protect the associated Core Spray pump from overheating when the pump is operating and the associated injection valve is not fully open. The minimum flow line valve is opened when low flow is sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump. One flow switch per Core Spray subsystem is used to detect the subsystem flow rate. The logic is arranged such that the flow switch causes the associated subsystem minimum flow valve to open. The logic will close the minimum flow valve once sufficient flow is achieved. The Core Spray Pump Discharge Flow - Low (Bypass) Allowable Values are high enough to ensure that the pump flow rate is sufficient to protect the pump, yet low enough to ensure that the closure of the minimum flow valve is initiated to allow full flow into the core.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)	One channel of the Core Spray Pump Discharge Flow - Low (Bypass) Function is required to be OPERABLE in MODES 4 and 5 when the associated Core Spray pump is required to be OPERABLE by LCO 3.5.2 to ensure the pump is capable of injecting into the Reactor Pressure Vessel when manually started.

Shutdown Cooling System Isolation

3.a - Reactor Vessel Water Level - Low, Level 3

The definition of Drain Time allows crediting the closing of penetration flow paths that are capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation. The Reactor Vessel Water Level - Low, Level 3 Function associated with the RHR Shutdown Cooling System isolation may be credited for automatic isolation of penetration flow paths associated with the RHR System.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. While four channels (two channels per trip system) of the Reactor Vessel Water Level - Low, Level 3 Function are available, only two channels (one channel for trip system A and one channel for trip system B) are required to be OPERABLE.

The Reactor Vessel Water Level - Low, Level 3 Allowable Value was chosen to be the same as the Primary Containment Isolation Instrumentation Reactor Vessel Water Level - Low, Level 3 Allowable Value (LCO 3.3.6.1), since the capability to cool the fuel may be threatened.

The Reactor Vessel Water Level - Low, Level 3 Function is only required to be OPERABLE when automatic isolation of the associated penetration flow path is credited in calculating DRAIN TIME.

This Function isolates the Group 2 valves.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)	Reactor Water Cleanup (RWCU) System Isolation

4.a - Reactor Vessel Water Level - Low, Level 3

The definition of Drain Time allows crediting the closing of penetration flow paths that are capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation. The Reactor Vessel Water Level - Low, Level 3 Function associated with RWCU System isolation may be credited for automatic isolation of penetration flow paths associated with the RWCU System.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. While four channels (two channels per trip system) of the Reactor Vessel Water Level - Low, Level 3 Function are available, only two channels (one channel for trip system A and one channel for trip system B) are required to be OPERABLE.

The Reactor Vessel Water Level - Low, Level 3 Allowable Value was chosen to be the same as the Primary Containment Isolation Instrumentation Reactor Vessel Water Level - Low, Level 3 Allowable Value (LCO 3.3.6.1), since the capability to cool the fuel may be threatened.

The Reactor Vessel Water Level - Low, Level 3 Function is only required to be OPERABLE when automatic isolation of the associated penetration flow path is credited in calculating DRAIN TIME.

This Function isolates the Group 3 valves.

(continued)

BASES

ACTIONS

A Note has been provided to modify the ACTIONS related to RPV Water Inventory Control instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable RPV Water Inventory Control instrumentation channels provide appropriate compensatory measures for separate inoperable Condition entry for each inoperable RPV Water Inventory Control instrumentation channel.

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.2-1. The applicable Condition referenced in the Table is Function dependent. Each time a channel is discovered inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

Shutdown Cooling System Isolation, Reactor Vessel Water Level - Low, Level 3, and Reactor Water Cleanup System Isolation, Reactor Vessel Water Level - Low, Level 3 functions are applicable when automatic isolation of the associated penetration flow path is credited in calculating Drain Time. If the instrumentation is inoperable and credited for the DRAIN TIME calculation, Required Action B.1 directs an immediate declaration that the associated penetration flow path(s) are incapable of automatic isolation. Required Action B.2 directs calculation of DRAIN TIME (reference SR 3.5.2.1). The calculation cannot credit automatic isolation of the affected penetration flow paths.

(continued)

BASES

ACTIONS (continued)

C.1

Low reactor steam dome pressure signals are used as permissives for manually aligning the low pressure ECCS injection/spray subsystem. If the permissive is inoperable, manual alignment of ECCS is precluded. Therefore, the permissive must be placed in the trip condition within 1 hour. With the permissive in the trip condition, manual alignment may be performed.

The Completion Time of 1 hour is intended to allow the operator time to evaluate any discovered inoperabilities and to place the channel in trip.

D.1

If a Core Spray Pump Discharge Flow - Low (Bypass) function is inoperable, there is a risk that the associated Core Spray pump could overheat when the pump is operating and the associated injection valve is not fully open. In this condition, the operator can manually secure the pump or open the injection valve to ensure the pump does not overheat, but this is not the preferred condition.

The 24 hour Completion Time was chosen to allow time for the operator to evaluate and repair any discovered inoperabilities. The Completion Time is appropriate given the ability to manually secure the Core Spray pump or manually open the injection valve to ensure the pump does not overheat.

E.1

With the Required Action and associated Completion Time of Condition C or D not met, the associated low pressure ECCS injection/spray subsystem may be incapable of performing the intended function, and must be declared inoperable immediately.

(continued)

BASES

SURVIELLANCE REQUIREMENTS

As noted in the beginning of the SRs, the SRs for each RPV Water Inventory Control Instrument Function are found in the SRs column of Table 3.3.5.2-1.

SR 3.3.5.2.1

Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK guarantees that undetected outright channel failure is limited; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL FUNCTIONAL TEST.

Agreement criteria are determined by the plant staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The frequency of 12 hours is based upon operating experience that demonstrates channel failure is rare.

The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

SR 3.3.5.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function.

(continued)

BASES

SURVIELLANCE REQUIREMENTS

SR 3.3.5.2.2 (continued)

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based upon operating experience that demonstrates channel failure is rare.

REFERENCES

1. Information Notice 84-81 "Inadvertent Reduction in Primary Coolant Inventory in Boiling Water Reactors During Shutdown and Startup," November 1984.

2. Information Notice 86-74, "Reduction of Reactor Coolant Inventory Because of Misalignment of RHR Valves," August 1986.

3. Generic Letter 92-04, "Resolution of the Issues Related to Reactor Vessel Water Level Instrumentation in BWRs Pursuant to 10 CFR 50.54(F), " August 1992.

4. NRC Bulletin 93-03, "Resolution of Issues Related to Reactor Vessel Water Level Instrumentation in BWRs," May 1993.

5. Information Notice 94-52, "Inadvertent Containment Spray and Reactor Vessel Draindown at Millstone 1," July 1994.

(continued)

B 3.3 INSTRUMENTATION

B 3.3.5.3~~2~~ Reactor Core Isolation Cooling (RCIC) System Instrumentation

BASES

BACKGROUND

The purpose of the RCIC System instrumentation is to initiate actions to ensure adequate core cooling when the reactor vessel is isolated from its primary heat sink (the main condenser) and normal coolant makeup flow from the Reactor Feedwater System is unavailable, such that initiation of the low pressure Emergency Core Cooling Systems (ECCS) pumps does not occur. A more complete discussion of RCIC System operation is provided in the Bases of LCO 3.5.3, "RCIC System."

The RCIC System may be initiated by either automatic or manual means. Automatic initiation occurs for conditions of reactor vessel Low Low water level. The variable is monitored by four transmitters that are connected to four trip units. The outputs of the trip units are connected to relays whose contacts are arranged in a one-out-of-two taken twice logic arrangement. Once initiated, the RCIC logic seals in and can be reset by the operator only when the reactor vessel water level signals have cleared.

The RCIC test line isolation valve is closed on a RCIC initiation signal to allow full system flow.

There are two sources of water for RCIC operation. Reactor grade water in the CST is the normal source and the suppression pool is the alternate source. Although the RCIC System does not monitor the water levels in the High Pressure Coolant Injection (HPCI) supply header from the condensate

(continued)

BASES

BACKGROUND (continued)

storage tank (CST) and the suppression pool, administrative controls are in place that direct the transfer from the CST to the suppression pool when the HPCI System automatically transfers on low HPCI pump supply header level or high suppression pool level.

The RCIC System provides makeup water to the reactor until the reactor vessel water level reaches the high water level (Level 8) trip (two-out-of-two logic), at which time the RCIC steam supply closes and the minimum flow valve closes, if open. The RCIC System restarts if vessel level again drops to the low level initiation point (Level 2).

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The function of the RCIC System to provide makeup coolant to the reactor is used to respond to transient events. The RCIC System is not an Engineered Safety Feature System and no credit is taken in the safety analyses for RCIC System operation. Based on its contribution to the reduction of overall plant risk, however, the system, and therefore its instrumentation meets Criterion 4 of the NRC Policy Statement (Ref. 2). Certain instrumentation Functions are retained for other reasons and are described below in the individual Functions discussion.

The OPERABILITY of the RCIC System instrumentation is dependent upon the OPERABILITY of the individual instrumentation channel Functions specified in Table 3.3.5.3~~2~~-1. Each Function must have a required number of OPERABLE channels with their setpoints within the specified Allowable Values, where appropriate. A channel is inoperable if its actual trip setpoint is not within its required Allowable Value. The setpoint is calibrated consistent with applicable setpoint methodology assumptions (nominal trip setpoint).

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Allowable Values are specified for each RCIC System instrumentation Function specified in the Table. Nominal trip setpoints are specified in the setpoint calculations and contained in design output documents, which for instrument functions that have a specific footnote in Table 3.3.1.1-1, is incorporated by reference in Chapter 7 of the Updated Final Safety Analysis Report (UFSAR). For these, the methodology used to determine the nominal trip setpoint, the predefined as-found tolerance, the as-left tolerance band, and a listing of the setpoint design output documentation is specified in Chapter 7 of the UFSAR. The nominal setpoints are selected to ensure that the setpoints do not exceed the Allowable Value between CHANNEL CALIBRATIONS. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. Each Allowable Value specified accounts for instrument uncertainties appropriate to the Function. These uncertainties are described in the setpoint methodology.

The individual Functions are required to be OPERABLE in MODE 1, and in MODES 2 and 3 with reactor steam dome pressure > 150 psig since this is when RCIC is required to be OPERABLE. (Refer to LCO 3.5.3 for Applicability Bases for the RCIC System.)

The specific Applicable Safety Analyses, LCO, and Applicability discussions are listed below on a Function by Function basis.

1. Reactor Vessel Water Level - Low Low, Level 2
(LIS-3-58A-D)

Low reactor pressure vessel (RPV) water level indicates that normal feedwater flow is insufficient to maintain reactor vessel water level and that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, the RCIC System is initiated at Level 2 to assist in maintaining water level above the top of the active fuel.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Reactor Vessel Water Level - Low Low, Level 2 (LIS-3-58A-D) (continued)

Reactor Vessel Water Level - Low Low, Level 2 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel.

The Reactor Vessel Water Level - Low Low, Level 2 Allowable Value is set high enough such that for complete loss of feedwater flow, the RCIC System flow with high pressure coolant injection assumed to fail will be sufficient to avoid initiation of low pressure ECCS at Level 1.

Four channels of Reactor Vessel Water Level - Low Low, Level 2 Function are available and are required to be OPERABLE when RCIC is required to be OPERABLE to ensure that no single instrument failure can preclude RCIC initiation. Refer to LCO 3.5.3 for RCIC Applicability Bases.

For this instrument function, the nominal trip setpoint including the as-left tolerances is defined as the LSSS. The acceptable as-found band is based on a statistical combination of possible measurable uncertainties (i.e., setting tolerance, drift, temperature effects, and measurement and test equipment). During instrument calibrations, if the as-found setpoint is found to be conservative with respect to the Allowable Value, but outside its acceptable as-found band (tolerance range), as defined by its associated Surveillance Requirement procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the Surveillance. The technician performing the Surveillance will evaluate the instrument's ability to maintain a stable setpoint within the

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Reactor Vessel Water Level - Low Low, Level 2 (LIS-3-58A-D) (continued)

as-left tolerance. The technician's evaluation will be reviewed by on shift personnel during the approval of the Surveillance data prior to returning the channel back to service at the completion of the Surveillance. This shall constitute the initial determination of operability. If a channel is found to exceed the channel's Allowable Value or cannot be reset within the acceptable as-left tolerance, the channel shall be declared inoperable. Also, after the Surveillance is completed, the channel's as-found condition will be documented in the Corrective Action Program. As part of the activities of the Corrective Action Program, additional evaluations and potential corrective actions will be performed as necessary to ensure that any as-found setting, which is conservative to the Allowable Value, but outside the acceptable as-found band is evaluated for long-term reliability trends.

2. Reactor Vessel Water Level - High, Level 8 (LIS-3-208A and 208C)

High RPV water level indicates that sufficient cooling water inventory exists in the reactor vessel such that there is no danger to the fuel. Therefore, the Level 8 signal is used to close the RCIC steam supply valve to prevent overflow into the main steam lines (MSLs).

Reactor Vessel Water Level - High, Level 8 signals for RCIC are initiated from two level transmitters from the narrow range water level measurement instrumentation, which sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2. Reactor Vessel Water Level - High, Level 8 (LIS-3-208A and 208C) (continued)

The Reactor Vessel Water Level - High, Level 8 Allowable Value is high enough to preclude closing the RCIC steam supply valve, yet low enough to trip the RCIC System prior to water overflowing into the MSLs.

Two channels of Reactor Vessel Water Level - High, Level 8 Function are available and are required to be OPERABLE when RCIC is required to be OPERABLE. Refer to LCO 3.5.3 for RCIC Applicability Bases.

ACTIONS

A Note has been provided to modify the ACTIONS related to RCIC System instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable RCIC System instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable RCIC System instrumentation channel.

(continued)

BASES

ACTIONS (continued)

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.3~~2~~-1. The applicable Condition referenced in the Table is Function dependent. Each time a channel is discovered to be inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in a complete loss of automatic initiation capability for the RCIC System. In this situation (loss of automatic initiation capability), the 24 hour allowance of Required Action B.2 is not appropriate, and the RCIC System must be declared inoperable within 1 hour after discovery of loss of RCIC initiation capability.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action B.1, the Completion Time only begins upon discovery that the RCIC System cannot be automatically initiated due to two or more inoperable, untripped Reactor Vessel Water Level - Low Low, Level 2 channels such that the trip system loses initiation capability. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

(continued)

ACTIONS

B.1 and B.2 (continued)

Because of the redundancy of sensors available to provide initiation signals and the fact that the RCIC System is not assumed in any accident or transient analysis, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 1) to permit restoration of any inoperable channel to OPERABLE status. For conservatism, in some transient analyses, RCIC flow rates were used rather than HPCI flow rates. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action B.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue. Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an initiation), Condition D must be entered and its Required Action taken.

C.1

A risk based analysis was performed and determined that an allowable out of service time of 24 hours (Ref. 1) is acceptable to permit restoration of any inoperable channel to OPERABLE status (Required Action C.1). A Required Action (similar to Required Action B.1) limiting the allowable out of service time, if a loss of automatic RCIC initiation capability exists, is not required. This Condition applies to the Reactor Vessel Water Level - High, Level 8 Function whose logic is arranged such that any inoperable channel will result in a loss of automatic RCIC initiation capability. As stated above, this loss of automatic RCIC initiation capability was analyzed and determined to be acceptable. The Required Action does not allow placing a channel in trip since this action would not necessarily result in a safe state for the channel in all events.

(continued)

BASES

ACTIONS (continued)

D.1

With any Required Action and associated Completion Time not met, the RCIC System may be incapable of performing the intended function, and the RCIC System must be declared inoperable immediately.

SURVEILLANCE REQUIREMENTS

As noted in the beginning of the SRs, the SRs for each RCIC System instrumentation Function are found in the SRs column of Table 3.3.5.3~~2~~-1.

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Function 2; and (b) for up to 6 hours for Function 1, provided the associated Function maintains trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 1) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the RCIC will initiate when necessary.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.~~2~~3.1

Performance of the CHANNEL CHECK once every 24 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a parameter on other similar channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Frequency is based upon operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.3~~2~~.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of Reference 1.

SR 3.3.5.3~~2~~.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency of SR 3.3.5.~~2~~3.3 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.3~~2~~.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.3 overlaps this Surveillance to provide complete testing of the safety function.

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. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. GENE-770-06-2, "Addendum to Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

6.b. Reactor Vessel Water Level - Low, Level 3 (LIS-3-203A-D)

Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of some reactor vessel interfaces occurs to begin isolating the potential sources of a break. The Reactor Vessel Water Level - Low, Level 3 Function associated with RHR Shutdown Cooling System isolation is not directly assumed in safety analyses because a break of the RHR Shutdown Cooling System is bounded by breaks of the recirculation and MSL. The RHR Shutdown Cooling System isolation on Level 3 supports actions to ensure that the RPV water level does not drop below the top of the active fuel during a vessel draindown event caused by a leak (e.g., pipe break or inadvertent valve opening) in the RHR Shutdown Cooling System.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels (two channels per trip system) of the Reactor Vessel Water Level - Low, Level 3 Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. ~~As noted (footnote (b) to Table 3.3.6.1-1), only two channels of the Reactor Vessel Water Level - Low , Level 3 Function (one channel for PCIS trip system A and one channel for PCIS trip system B) with the capability of isolating one RHR SDC supply isolation valve are required to be OPERABLE in MODES 4 and 5, provided the RHR Shutdown Cooling System integrity is maintained. System integrity is maintained provided the piping is intact and no maintenance is being performed that has the potential for draining the reactor vessel through the system.~~

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

6.b. Reactor Vessel Water Level - Low, Level 3 (LIS-3-203A-D) (continued)

The Reactor Vessel Water Level - Low, Level 3 Allowable Value was chosen to be the same as the RPS Reactor Vessel Water Level - Low, Level 3 Allowable Value (LCO 3.3.1.1), since the capability to cool the fuel may be threatened.

The Reactor Vessel Water Level - Low, Level 3 Function is only required to be OPERABLE in MODE~~S~~ 3~~, 4, and 5~~ to prevent the potential flow paths from lowering the reactor vessel level to the top of the fuel. In MODES 1 and 2, other isolation Functions are required to be OPERABLE (i.e., Reactor Steam Dome Pressure - High and Drywell Pressure - High) and administrative controls for the flow paths prevent unexpected loss of inventory via these flow paths.

This Function is required for the isolation of the Group 2 RHR LPCI to Reactor and RHR SDC Supply isolation valves. Portions of this instrumentation are also required for Functions 2.a and 5.h.

6.c. Drywell Pressure - High (PIS-64-56A-D)

High drywell pressure can indicate a break in the RCPB inside the primary containment. The isolation of some of the primary containment isolation valves on high drywell pressure supports actions to ensure that offsite dose limits of 10 CFR 50.67 are not exceeded. The Drywell Pressure - High Function, associated with isolation of the primary containment, is implicitly assumed in the FSAR accident analysis as these leakage paths are assumed to be isolated post LOCA.

(continued)

BASES

ACTIONS (continued)

I.1~~ and I.2~~

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated penetration flow path(s) should be closed. However, if the shutdown cooling function is needed to provide core cooling, these Required Actions allow the penetration flow path(s) to remain unisolated provided action is immediately initiated to restore the channel to OPERABLE status or to isolate the RHR Shutdown Cooling System (i.e., provide alternate decay heat removal capabilities so the penetration flow path(s) can be isolated). Actions must continue until the channel is restored to OPERABLE status.~~ or the RHR Shutdown Cooling System is isolated.~~

SURVEILLANCE REQUIREMENTS

As noted (Note 1) at the beginning of the SRs, the SRs for each Primary Containment Isolation instrumentation Function are found in the SRs column of Table 3.3.6.1-1.

The Surveillances are modified by a Note (Note 2) to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Refs. 5 and 6) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the PCIVs will isolate the penetration flow path(s) when necessary.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Reactor Vessel Water Level - Low, Level 3 (LIS-3-203A-D) (continued)

these MODES; thus, this Function is not required. ~~In addition, the Function is also required to be OPERABLE during operations with a potential for draining the reactor vessel (OPDRVs) because the capability of isolating potential sources of leakage must be provided to ensure that offsite dose limits are not exceeded if core damage occurs.~~

2. Drywell Pressure - High (PIS-64-56A-D)

High drywell pressure can indicate a break in the reactor coolant pressure boundary (RCPB). An isolation of the secondary containment and actuation of the SGT System are initiated in order to minimize the potential of an offsite dose release. The isolation on high drywell pressure supports actions to ensure that any offsite releases are within the limits calculated in the safety analysis. However, the Drywell Pressure - High Function associated with isolation is not assumed in any FSAR accident or transient analyses. It is retained for the overall redundancy and diversity of the secondary containment isolation instrumentation as required by the NRC approved licensing basis.

High drywell pressure signals are initiated from pressure transmitters that sense the pressure in the drywell. These signals are the same that isolate the primary containment (additional information on the arrangement of these channels in the PCIS trip systems can be found in the Bases for LCO 3.3.6.1, "Primary Containment Isolation Instrumentation," Function 2). Four channels of Drywell Pressure - High Functions are available and are required to be OPERABLE to ensure that no single instrument failure can preclude performance of the isolation function.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

3, 4. Reactor Zone Exhaust and Refueling Floor Radiation - High (RM-90-140, 141, 142, 143) (continued)

ventilation exhaust both of which must be OPERABLE or tripped for the channel to be OPERABLE. Both radiation elements must provide a High signal to trip the associated channel (two-out-of-two). However, the output relays from the divisional trip systems are arranged in logic systems such that if either channel for a zone trips, a secondary containment isolation signal is initiated (one-out-of-two). Six channels of Reactor Zone Exhaust Radiation - High Function and six channels of Refueling Floor Radiation - High Function are available (two channels of each Function from each unit) and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Values are chosen to provide timely detection of nuclear system process barrier leaks inside containment but are far enough above background levels to avoid spurious isolation.

The Reactor Zone Exhaust and Refueling Floor Radiation - High Functions are required to be OPERABLE in MODES 1, 2, and 3 where considerable energy exists; thus, there is a probability of pipe breaks resulting in significant releases of radioactive steam and gas. In MODES 4 and 5, the probability and consequences of these events are low due to the RCS pressure and temperature limitations of these MODES; thus, these Functions are not required. ~~In addition, the Functions are also required to be OPERABLE during OPDRVs because the capability of detecting radiation releases due to fuel failures (due to fuel uncovery) must be provided to ensure that offsite dose limits are not exceeded.~~

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The specific Applicable Safety Analyses, LCO, and Applicability discussions are listed below on a Function by Function basis.

1. Reactor Vessel Water Level - Low, Level 3 (LIS-3-203A-D)

Low reactor pressure vessel (RPV) water level indicates that the capability of cooling the fuel may be threatened. A low reactor vessel water level could indicate a LOCA and will automatically initiate the CREV System, since this could be a precursor to a potential radiation release and subsequent radiation exposure to control room personnel.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level - Low, Level 3 Function are available (two channels per trip system) and are required to be OPERABLE to ensure that a single instrument failure cannot preclude CREV System initiation. The Reactor Vessel Water Level - Low, Level 3 allowable value was chosen to be the same as the RPS Level 3 scram allowable value (LCO 3.3.1.1).

The Reactor Vessel Water Level - Low, Level 3 Function is required to be OPERABLE in MODES 1, 2, and 3~~, and during operations with a potential for draining the reactor vessel (OPDRVs)~~ to ensure that the control room personnel are protected during a LOCA. In MODES 4 and 5~~ at times other than OPDRVs, the probability of a vessel draindown event resulting in a release of radioactive material into the environment is minimal. In addition~~, adequate protection is performed by the Control Room Air Supply Duct Radiation - High Function. Therefore, this Function is not required in other MODES and specified conditions.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

3., 4. Reactor Zone Exhaust and Refueling Floor Radiation - High (RM-90-140, 141, 142, 143)

High secondary containment exhaust radiation is an indication of possible gross failure of the fuel cladding. The release may have originated from the primary containment due to a break in the RCPB. A reactor zone or refueling floor exhaust high radiation signal will automatically initiate the CREV System, since this radiation release could result in radiation exposure to control room personnel.

The reactor zone and refueling floor exhaust radiation monitors provide two independent channels for each ventilation exhaust path coming from the reactor zones and the refueling zone. There are two radiation monitors (each monitor provides one channel of each Function) and two divisional trip systems for each unit (Units 1, 2, and 3). Six channels of each function are available (two channels of each Function from each unit) and are required to be OPERABLE to ensure that no single instrument failure can preclude CREV System initiation. The Allowable Value was selected to ensure that the Function will promptly detect high activity that could threaten exposure to control room personnel.

The Reactor Zone Exhaust and Refueling Floor Radiation - High Functions are required to be OPERABLE in MODES 1, 2, and 3~~ and during operations with a potential for draining the reactor vessel (OPDRVs)~~, to ensure that control room personnel are protected during a LOCA~~ or vessel draindown event~~. During MODES 4 and 5, ~~when these specified conditions are not in progress (e.g., OPDRVs),~~ the probability of a LOCA or fuel damage is low; thus, the Function is not required.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

5. Control Room Air Supply Duct Radiation - High (RM-90-259A and B)

The control room air supply duct radiation monitors measure radiation levels in normal control room air supply ducts. A high radiation level may pose a threat to CR personnel; thus, the CREV System is automatically initiated on a control room air supply duct high radiation signal.

The Control Room Air Supply Duct Radiation - High Function consists of two independent monitors. Two channels of Control Room Air Supply Duct Radiation - High are available and are required to be OPERABLE to ensure that no single instrument failure can preclude CREV System initiation. The Allowable Value was selected to ensure protection of the control room personnel.

The Control Room Air Supply Duct Radiation - High Function is required to be OPERABLE in MODES 1, 2, and 3 ~~and during OPDRVs~~ to ensure that control room personnel are protected during a LOCA~~ or vessel draindown event~~. During MODES 4 and 5~~, when these specified conditions are not in progress (e.g., OPDRVs)~~, the probability of a LOCA or fuel damage is low; thus, the Function is not required.

(continued)

B 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

B 3.5.1 ECCS - Operating

BASES

BACKGROUND

The ECCS are designed, in conjunction with the primary and secondary containment, to limit the release of radioactive materials to the environment following a loss of coolant accident (LOCA). The ECCS uses two independent methods (flooding and spraying) to cool the core during a LOCA. The ECCS network consists of the High Pressure Coolant Injection (HPCI) System, the Core Spray (CS) System, the low pressure coolant injection (LPCI) mode of the Residual Heat Removal (RHR) System, and the Automatic Depressurization System (ADS). The suppression pool provides the required source of water for the ECCS. Although no credit is taken in the safety analyses for the condensate storage tank (CST), it is capable of providing a source of water for the HPCI, RHR and CS systems. The ECCS design requirements ensure that the criteria of Reference 12 are satisfied.

On receipt of an initiation signal, ECCS pumps automatically start; simultaneously, the system aligns and the pumps inject water, taken either from the CST or suppression pool, into the Reactor Coolant System (RCS) as RCS pressure is overcome by the discharge pressure of the ECCS pumps. Although the system is initiated, ADS action is delayed, allowing the operator to interrupt the timed sequence if the system is not needed. The HPCI pump discharge pressure almost immediately exceeds that of the RCS, and the pump injects coolant into the vessel to cool the core. If the break is small, the HPCI System will maintain coolant inventory as well as vessel level while the

(continued)

BASES

LCO (continued)	LPCI subsystems may be considered OPERABLE during alignment and operation for decay heat removal when below the actual RHR low pressure permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. At these low pressures and decay heat levels, a reduced complement of ECCS subsystems should provide the required core cooling, thereby allowing operation of RHR shutdown cooling when necessary.
APPLICABILITY	All ECCS subsystems are required to be OPERABLE during MODES 1, 2, and 3, when there is considerable energy in the reactor core and core cooling would be required to prevent fuel damage in the event of a break in the primary system piping. In MODES 2 and 3, when reactor steam dome pressure is ≤ 150 psig, ADS and HPCI are not required to be OPERABLE because the low pressure ECCS subsystems can provide sufficient flow below this pressure. ~~ECCS r~~Requirements for MODES 4 and 5 are specified in LCO 3.5.2, "RPV Water Inventory Control~~ECCS — Shutdown~~."
ACTIONS	A Note prohibits the application of LCO 3.0.4 b to an inoperable HPCI subsystem. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable HPCI subsystem and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

(continued)

B 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

B 3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control~~ECCS – Shutdown~~

BASES

BACKGROUND

The RPV contains penetrations below the top of active fuel (TAF) that have the potential to drain the reactor coolant inventory to below the TAF. If the water level should drop below the TAF, the ability to remove decay heat is reduced, which could lead to elevated cladding temperatures and clad perforation. Safety Limit 2.1.1.3 requires the RPV water level to be above the top of the active irradiated fuel at all times to prevent such elevated cladding temperatures.~~A description of the Core Spray (CS) System and the low pressure coolant injection (LPCI) mode of the Residual Heat Removal (RHR) System is provided in the Bases for LCO 3.5.1, "ECCS – Operating." For LCO 3.5.2, only one pump is required for an OPERABLE subsystem, as stated in the LCO Bases below.~~

APPLICABLE SAFETY ANALYSES

With the unit in MODE 4 or 5, RPV water inventory control is not~~The ECCS performance is evaluated for the entire spectrum of~~ required to mitigate any events or accidents evaluated in the safety analyses. RPV water inventory control is required in MODES 4 and 5 to protect Safety Limit 2.1.1.3 and the fuel cladding barrier to prevent the release of radioactive material to the environment should an unexpected draining event occur.

A double-ended guillotine break of the Reactor Coolant System (RCS) is not postulated in MODES 4 and 5 due to the reduced RCS pressure, reduced piping stresses, and ductile piping systems. Instead, an event is considered in which single operator error or initiating event allows draining of the RPV water inventory through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human

(continued)

error).~~break sizes in the long term cooling analysis (Ref. 1) for a postulated loss of coolant accident (LOCA). The ECCS requirements are significantly reduced during shutdown since a LOCA is not postulated to occur. However, some ECCS capability may be required to restore and maintain the reactor coolant level in the event of an inadvertent draindown.~~ It is ~~reasonable to~~ assumed, based on engineering judgment, that while in MODES 4 and 5, one low pressure ECCS injection/spray subsystem can maintain adequate reactor vessel water level. ~~in the event of an inadvertent vessel draindown. To provide redundancy, a minimum of two low pressure ECCS injection/spray subsystems are required to be OPERABLE in MODES 4 and 5.~~

As discussed in References 1, 2, 3, 4, and 5, operating experience has shown RPV water inventory to be significant to public health and safety. Therefore, RPV Water Inventory Control satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).~~The low pressure ECCS subsystems satisfy Criterion 3 of the NRC Policy Statement (Ref. 2).~~

(continued)

BASES (continued)

LCO

The RPV water level must be controlled in MODES 4 and 5 to ensure that if an unexpected draining event should occur, the reactor coolant water level remains above the top of the active irradiated fuel as required by Safety Limit 2.1.1.3.

The Limiting Condition for Operation (LCO) requires the DRAIN TIME of RPV water inventory to the TAF to be ≥ 36 hours. A DRAIN TIME of 36 hours is considered reasonable to identify and initiate action to mitigate unexpected draining of reactor coolant. An event that could cause loss of RPV water inventory and result in the RPV water level reaching the TAF in greater than 36 hours does not represent a significant challenge to Safety Limit 2.1.1.3 and can be managed as part of normal plant operation.

One ~~Two~~ low pressure ECCS injection/spray subsystem~~s~~ is ~~are~~ required to be OPERABLE and capable of being manually started to provide defense-in-depth should an unexpected draining event occur. A~~The~~ low pressure ECCS injection/spray subsystem~~s~~ ~~include~~consists of either one~~-~~ Core Spray (CS) subsystem~~s~~ or~~and~~ one Low Pressure Coolant Injection (LPCI) subsystem~~s~~. Each CS subsystem consists of one motor driven pump, piping, and valves to transfer water from the suppression pool to the ~~reactor pressure vessel (~~RPV~~)~~. Each LPCI subsystem consists of one motor driven pump, piping, and valves to transfer water from the suppression pool to the RPV. The necessary portions of the Emergency Equipment Cooling Water System are also required to provide adequate cooling to each required ECCS subsystem.

The LCO is modified by a Note which allows a required ~~An~~ LPCI subsystem to~~may~~ be aligned for decay heat removal and considered OPERABLE for the ECCS function, if it can be manually realigned (remote or local) to the LPCI mode and is not otherwise inoperable. Because of the restrictions on DRAIN TIME, sufficient time will be available following an unexpected draining event ~~low pressure and low temperature conditions in MODES 4 and 5, sufficient time will be available~~ to manually align and initiate LPCI subsystem operation to maintain RPV

(continued)

water inventory prior to the RPV water level reaching the TAF.~~-~~ ~~to provide core cooling prior to postulated fuel uncovery.~~

APPLICABILITY

RPV water inventory control is required in MODES 4 and 5. Requirements on water inventory control in other MODES are contained in LCOs in Section 3.3, "Instrumentation," and other LCOs in Section 3.5, "Emergency Core Cooling Systems (ECCS), RPV Water Inventory Control, and Reactor Core Isolation Cooling (RCIC) System." RPV water inventory control is required to protect Safety Limit 2.1.1.3 which is applicable whenever irradiated fuel is in the reactor vessel.~~OPERABILITY of the low pressure ECCS injection/spray subsystems is required in MODES 4 and 5 to ensure adequate coolant inventory and sufficient heat removal capability for the irradiated fuel in the core in case of an inadvertent draindown of the vessel. Requirements for ECCS OPERABILITY during~~ MODES ~~1, 2, and 3 are discussed in the Applicability section of the Bases for LCO 3.5.1. ECCS subsystems are not required to be OPERABLE during MODE 5 with the spent fuel storage pool gates removed and the water level maintained at ≥ 22 ft above the RPV flange. This provides sufficient coolant inventory to allow operator action to terminate the inventory loss prior to fuel uncovery in case of an inadvertent draindown.~~

(continued)

BASES

~~APPLICABILITY (continued)~~

~~The Automatic Depressurization System is not required to be OPERABLE during MODES 4 and 5 because the RPV pressure is ≤ 150 psig, and the CS System and the LPCI subsystems can provide core cooling without any depressurization of the primary system.~~

~~The High Pressure Coolant Injection System is not required to be OPERABLE during MODES 4 and 5 since the low pressure ECCS injection/spray subsystems can provide sufficient flow to the vessel.~~

ACTIONS

A.1 and B.1

If ~~any~~the ~~one~~ required low pressure ECCS injection/spray subsystem is inoperable, it ~~the inoperable subsystem~~ must be restored to OPERABLE status within 4 hours. In this condition, the LCO controls on DRAIN TIME minimize the possibility that an unexpected draining event could necessitate the use of the ECCS injection/spray subsystem, however the defense-in-depth provided by the ECCS injection/spray subsystem is lost.~~the remaining OPERABLE subsystem can provide sufficient vessel flooding capability to recover from an inadvertent vessel draindown. However, overall system reliability is reduced because a single failure in the remaining OPERABLE subsystem concurrent with a vessel draindown could result in the ECCS not being able to perform its intended function.~~ The 4 hour Completion Time for restoring the required low pressure ECCS injection/spray subsystem to OPERABLE status is based on engineering judgment that considers~~ed~~ the LCO controls on DRAIN TIME ~~the remaining available subsystem~~ and the low probability of an unexpected draining ~~a vessel draindown~~ event that would result in loss of RPV water inventory.

(continued)

BASES

ACTIONS

A.1 and B.1 (continued)

~~With~~If the inoperable ECCS injection/spray subsystem is not restored to OPERABLE status within the required Completion Time, action must be initiated immediately ~~initiated~~ to establish a method of water injection capable of operating without offsite electrical power. The method of water injection includes the necessary instrumentation and controls, water sources, and pumps and valves needed to add water to the RPV or refueling cavity should an unexpected draining event occur. The method of water injection may be manually initiated and may consist of one or more systems or subsystems, and must be able to access water inventory capable of maintaining the RPV water level above the TAF for ≥ 36 hours. If recirculation of injected water would occur, it may be credited in determining the necessary water volume.~~suspend operations with a potential for draining the reactor vessel (OPDRVs) to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.~~

C.1, C.2, and C.3

With the DRAIN TIME less than 36 hours but greater than or equal to 8 hours, compensatory measures should be taken to ensure the ability to implement mitigating actions should an unexpected draining event occur. Should a draining event lower the reactor coolant level to below the TAF, there is potential for damage to the reactor fuel cladding and release of radioactive material. Additional actions are taken to ensure that radioactive material will be contained, diluted, and processed prior to being released to the environment.

The secondary containment provides a controlled volume in which fission products can be contained, diluted, and processed prior to release to the environment. Required Action C.1 requires Verification of the capability to establish the secondary containment boundary in less than the DRAIN TIME. The required verification confirms actions to establish the secondary

(continued)

BASES

ACTIONS

C.1, C.2, and C.3 (continued)

containment boundary are preplanned and necessary materials are available. The secondary containment boundary is considered established when two Standby Gas Treatment (SGT) subsystems are capable of maintaining a negative pressure in the secondary containment with respect to the environment. Verification that the secondary containment boundary can be established must be performed within 4 hours. The required verification is an administrative activity and does not require manipulation or testing of equipment.

Secondary containment penetration flow paths form a part of the secondary containment boundary. Required Action C.2 requires verification of the capability to isolate each secondary containment penetration flow path in less than the DRAIN TIME. The required verification confirms actions to isolate the secondary containment penetration flow paths are preplanned and necessary materials are available. Power operated valves are not required to receive automatic isolation signals if they can be closed manually within the required time. Verification that the secondary containment penetration flow paths can be isolated must be performed within 4 hours. The required verification is an administrative activity and does not require manipulation or testing of equipment.

Two SGT subsystems are capable of maintaining the secondary containment at a negative pressure with respect to the environment and filter gaseous releases. Required Action C.3 requires verification of the capability to place two SGT subsystems in operation in less than the DRAIN TIME. The required verification confirms actions to place the SGT subsystems in operation are preplanned and necessary materials are available. Verification that the SGT subsystems can be placed in operation must be performed within 4 hours.

(continued)

BASES

ACTIONS

C.1, C.2, and C.3 (continued)

The required verification is an administrative activity and does not require manipulation or testing of equipment.

Required Actions C.1, C.2, and C.3 are considered to be met when Secondary Containment, Secondary Containment Isolation Valves, and the Standby Gas Treatment System are OPERABLE.

D.1, D.2, D.3, and D.4

With the DRAIN TIME less than 8 hours, mitigating actions are implemented in case an unexpected draining event should occur. Note that if the DRAIN TIME is less than 1 hour, Required Action E.1 is also applicable.

Required Action D.1 requires immediate action to establish an additional method of water injection augmenting the ECCS injection/spray subsystem required by the LCO. The additional method of water injection includes the necessary instrumentation and controls, water sources, and pumps and valves needed to add water to the RPV or refueling cavity should an unexpected draining event occur. The Note to Required Action D.1 states that either the ECCS injection/ spray subsystem or the additional method of water injection must be capable of operating without offsite electrical power. The additional method of water injection may be manually initiated and may consist of one or more systems or subsystems. The additional method of water injection must be able to access water inventory capable of being injected to maintain the RPV water level above the TAF for ≥ 36 hours. The additional method of water injection and the ECCS injection/spray subsystem may share all or part of the same water sources. If recirculation of injected water would occur, it may be credited in determining the required water volume.

(continued)

BASES

ACTIONS D.1, D.2, D.3, and D.4 (continued)

Should a draining event lower the reactor coolant level to below the TAF, there is potential for damage to the reactor fuel cladding and release of radioactive material. Additional actions are taken to ensure that radioactive material will be contained, diluted, and processed prior to being released to the environment.

The secondary containment provides a control volume in which fission products can be contained, diluted, and processed prior to release to the environment. Required Action D.2 requires that actions be immediately initiated to establish the secondary containment boundary. With the secondary containment boundary established, two SGT subsystems are capable of maintaining a negative pressure in the secondary containment with respect to the environment.

The secondary containment penetrations form a part of the secondary containment boundary. Required Action D.3 requires that actions be immediately initiated to verify that each secondary containment penetration flow path is isolated or to verify that it can be automatically or manually isolated from the control room.

Two SGT subsystems are capable of maintaining the secondary containment at a negative pressure with respect to the environment and filter gaseous releases. Required Action D.4 requires that actions be immediately initiated to verify that at least two SGT subsystems are capable of being placed in operation. The required verification is an administrative activity and does not require manipulation or testing of equipment.

Required Actions D.2, D.3, and D.4 are considered to be met when Secondary Containment, Secondary Containment Isolation Valves, and the Standby Gas Treatment System are OPERABLE.

(continued)

BASES

ACTIONS

E.1

If the Required Actions and associated Completion Times of Conditions C or D are not met or if the DRAIN TIME is less than 1 hour, actions must be initiated immediately to restore the DRAIN TIME to ≥ 36 hours. In this condition, there may be insufficient time to respond to an unexpected draining event to prevent the RPV water inventory from reaching the TAF. Note that Required Actions D.1, D.2, D.3, and D.4 are also applicable when DRAIN TIME is less than 1 hour.

~~C.1, C.2, D.1, D.2, and D.3~~

~~With both of the required ECCS injection/spray subsystems inoperable, all coolant inventory makeup capability may be unavailable. Therefore, actions must immediately be initiated to suspend OPDRVs to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until OPDRVs are suspended. One ECCS injection/spray subsystem must also be restored to OPERABLE status within 4 hours.~~

~~If at least one low pressure ECCS injection/spray subsystem is not restored to OPERABLE status within the 4 hour Completion Time, additional actions are required to minimize any potential fission product release to the environment. This includes ensuring secondary containment is OPERABLE; two standby gas treatment subsystems are OPERABLE; and secondary containment isolation capability (i.e., one isolation valve and associated instrumentation are OPERABLE or other acceptable administrative controls to assure isolation capability) in each associated penetration flow path not isolated that is assumed to be isolated to mitigate radioactivity releases. OPERABILITY may be verified by an administrative check, or by examining~~

(continued)

BASES

~~ACTIONS~~ ~~C.1, C.2, D.1, D.2, and D.3 (continued)~~

~~logs or other information, to determine whether the components are out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the components. If, however, any required component is inoperable, then it must be restored to OPERABLE status. In this case, the Surveillance may need to be performed to restore the component to OPERABLE status. Actions must continue until all required components are OPERABLE.~~

~~The 4 hour Completion Time to restore at least one low pressure ECCS injection/spray subsystem to OPERABLE status ensures that prompt action will be taken to provide the required cooling capacity or to initiate actions to place the plant in a condition that minimizes any potential fission product release to the environment.~~

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1

This Surveillance verifies that the DRAIN TIME of RPV water inventory to the TAF is ≥ 36 hours. The period of 36 hours is considered reasonable to identify and initiate action to mitigate draining of reactor coolant. Loss of RPV water inventory that would result in the RPV water level reaching the TAF in greater than 36 hours does not represent a significant challenge to Safety Limit 2.1.1.3 and can be managed as part of normal plant operation.

The definition of DRAIN TIME states that realistic cross-sectional areas and drain rates are used in the calculation. A realistic drain rate may be determined using a single, step-wise, or integrated calculation considering the changing RPV water level during a draining event. For a Control Rod RPV penetration flow path with the Control Rod Drive Mechanism removed and not replaced with a blank flange, the realistic cross-sectional area is based on the control rod blade seated in

(continued)

the control rod guide tube. If the control rod blade will be raised from the penetration to adjust or verify seating of the blade, the exposed cross- sectional area of the RPV penetration flow path is used.

The definition of DRAIN TIME excludes from the calculation those penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths. A blank flange or other bolted device must be connected with a sufficient number of bolts to prevent draining in the event of an Operating Basis Earthquake. Normal or expected leakage from closed systems or past isolation devices is permitted. Determination that a system is intact and closed or isolated must consider the status of branch lines and ongoing plant maintenance and testing activities.

The Residual Heat Removal (RHR) Shutdown Cooling System is only considered an intact closed system when misalignment issues (Reference 6) have been precluded by functional valve interlocks or by isolation devices, such that redirection of RPV water out of an RHR subsystem is precluded.

The exclusion of penetration flow paths from the determination of DRAIN TIME must consider the potential effects of a single operator error or initiating event on items supporting maintenance and testing (rigging, scaffolding, temporary shielding, piping plugs, snubber removal, freeze seals, etc.). If failure of such items could result and would cause a draining event from a closed system or between the RPV and the isolation device, the penetration flow path may not be excluded from the DRAIN TIME calculation.

Surveillance Requirement 3.0.1 requires SRs to be met between performances. Therefore, any changes in plant conditions that would change the DRAIN TIME requires that a new DRAIN TIME be determined.

(continued)

The Frequency of 12 hours is sufficient in view of indications of RPV water level available to the operator.

SR 3.5.2.2

The minimum water level of -6.25 inches with or -7.25 inches without differential pressure control, as indicated on narrow range instrumentation, required for the suppression pool is periodically verified to ensure that the suppression pool will provide adequate net positive suction head (NPSH) for the CS subsystem ~~System and~~or LPCI subsystem pumps, recirculation volume, and vortex prevention. With the suppression pool water level less than the required limit, all ECCS injection/spray subsystems are inoperable.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.2.2~~1~~ (continued)

The 12 hour Frequency of these SRs was developed considering operating experience related to suppression pool water level variations~~ and instrument drift during the applicable MODES~~. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal suppression pool water level condition.

~~SR 3.5.2.2, SR 3.5.2.4, and SR 3.5.2.5~~

~~The Bases provided for SR 3.5.1.1, SR 3.5.1.6, and SR 3.5.1.9 are applicable to SR 3.5.2.2, SR 3.5.2.4, and SR 3.5.2.5, respectively.~~

SR 3.5.2.3

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge lines of the required ECCS injection/spray subsystems full of water ensures that the ECCS subsystem will perform properly. This may also prevent a water hammer following a manual ECCS initiation. 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 3.5.2.4~~3~~

Verifying the correct alignment for manual, power operated, and automatic valves in the required ECCS subsystem flow path~~s~~ provides assurance that the proper flow paths will be available ~~exist~~ for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing. ~~A valve that receives an initiation signal is~~

(continued)

~~allowed to be in a nonaccident position provided the valve will automatically reposition 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. The 31 day Frequency is appropriate because the valves are operated under procedural control and the probability of their being mispositioned during this time period is low.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.2.4~~3~~ (continued)

~~In MODES 4 and 5, the RHR System may operate in the shutdown cooling mode to remove decay heat and sensible heat from the reactor. Therefore, RHR valves that are required for LPCI subsystem operation may be aligned for decay heat removal. Therefore, this SR is modified by a Note that allows one LPCI subsystem of the RHR System to be considered OPERABLE for the ECCS function if all the required valves in the LPCI flow path can be manually realigned (remote or local) to allow injection into the RPV, and the system is not otherwise inoperable. This will ensure adequate core cooling if an inadvertent RPV draindown should occur.~~

SR 3.5.2.5

Verifying that the required ECCS injection/spray subsystem can be manually started and operate for at least 10 minutes demonstrates that the subsystem is available to mitigate a draining event. Testing the ECCS injection/spray subsystem through the test return line is necessary to avoid overfilling the refueling cavity. The minimum operating time of 10 minutes was based on engineering judgement. The performance frequency of 92 days is consistent with similar at-power testing required by SR 3.5.1.6.

SR 3.5.2.6

Verifying that each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated RPV water level isolation signal is required to prevent RPV water inventory from dropping below the TAF should an unexpected draining event occur. 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. Operating experience has shown these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.5.2.7

The required ECCS subsystem is required to have a manual start capability. The ECCS subsystem is verified to start manually from a standby configuration.

The 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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

REFERENCES

~~1. NEDC-32484P, "Browns Ferry Nuclear Plant Units 1, 2, and 3, "SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," February 1996.~~

~~2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.~~

1. Information Notice 84-81 "Inadvertent Reduction in Primary Coolant Inventory in Boiling Water Reactors During Shutdown and Startup," November 1984.

2. Information Notice 86-74, "Reduction of Reactor Coolant Inventory Because of Misalignment of RHR Valves," August 1986.

3. Generic Letter 92-04, "Resolution of the Issues Related to Reactor Vessel Water Level Instrumentation in BWRs Pursuant to 10 CFR 50.54(F), " August 1992.

4. NRC Bulletin 93-03, "Resolution of Issues Related to Reactor Vessel Water Level Instrumentation in BWRs," May 1993.

5. Information Notice 94-52, "Inadvertent Containment Spray and Reactor Vessel Draindown at Millstone 1," July 1994.

6. General Electric Service Information Letter No. 388, "RHR Valve Misalignment During Shutdown Cooling Operation for BWR 3/4/5/6," February 1983.

B 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), RPV WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

B 3.5.3 RCIC System

BASES

BACKGROUND

The RCIC System is not part of the ECCS; however, the RCIC System is included with the ECCS section because of their similar functions.

The RCIC System is designed to operate either automatically or manually following reactor pressure vessel (RPV) isolation accompanied by a loss of coolant flow from the feedwater system to provide adequate core cooling and control of the RPV water level. Under these conditions, the High Pressure Coolant Injection (HPCI) and RCIC systems perform similar functions. The RCIC System design requirements ensure that the criteria of Reference 1 are satisfied.

The RCIC System (Ref. 2) consists of a steam driven turbine pump unit, piping, and valves to provide steam to the turbine, as well as piping and valves to transfer water from the suction source to the core via the feedwater system line, where the coolant is distributed within the RPV through the feedwater sparger. Suction piping is provided from the condensate storage tank (CST) and the suppression pool. Pump suction is normally aligned to the CST to minimize injection of suppression pool water into the RPV. However, if the CST water supply is low, or the suppression pool level is high, a manual transfer to the suppression pool water source ensures a water supply for continuous operation of the RCIC System. With RCIC taking suction from the condensate storage tank and injecting to the reactor vessel, there is sufficient inventory in the tank such that the high suppression pool level suction transfer will be required before a low condensate header level would be created. The steam supply to the turbine is piped from a main steam line upstream of the associated inboard main steam line isolation valve.

(continued)

BASES (continued)

LCO	The OPERABILITY of the RCIC System provides adequate core cooling such that actuation of any of the low pressure ECCS subsystems is not required in the event of RPV isolation accompanied by a loss of feedwater flow. The RCIC System has sufficient capacity for maintaining RPV inventory during an isolation event.
APPLICABILITY	The RCIC System is required to be OPERABLE during MODE 1, and MODES 2 and 3 with reactor steam dome pressure > 150 psig, since RCIC is the primary non-ECCS water source for core cooling when the reactor is isolated and pressurized. In MODES 2 and 3 with reactor steam dome pressure ≤ 150 psig, the low pressure ECCS injection/spray subsystems can provide sufficient flow to the RPV. In ~~and in~~ MODES 4 and 5, RCIC is not required to be OPERABLE since it is a steam-driven system and RPV water inventory control is required by LCO 3.5.2, "RPV Water Level Inventory Control." ~~the low pressure ECCS injection/spray subsystems can provide sufficient flow to the RPV.~~
ACTIONS	A Note prohibits the application of LCO 3.0.4.b to an inoperable RCIC system. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable RCIC system and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.3.5

The RCIC System is required to actuate automatically in order to perform its design function satisfactorily. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of the RCIC System will cause the system to operate as designed, including actuation of the system throughout its emergency operating sequence; that is, automatic pump startup and actuation of all automatic valves to their required positions. This test also ensures the RCIC System will automatically restart on an RPV low-low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.3~~2~~ overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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.

(continued)

BASES

LCO (continued)	MSIVs must meet additional leakage rate requirements. Other PCIV leakage rates are addressed by LCO 3.6.1.1, "Primary Containment," as Type B or C testing. This LCO provides assurance that the PCIVs will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the primary containment boundary during accidents.
APPLICABILITY	In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, ~~most~~ PCIVs are not required to be OPERABLE and the primary containment purge valves are not required to be closed in MODES 4 and 5. ~~Certain valves, however, are required to be OPERABLE to prevent inadvertent reactor vessel draindown. These valves are those whose associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation." (This does not include the valves that isolate the associated instrumentation.)~~
ACTIONS	The ACTIONS are modified by a Note allowing penetration flow path(s) except for purge valve flow path(s) to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control

(continued)

BASES

ACTIONS (continued)

D.1

With any MSIV leakage rate not within limits, the assumptions of the safety analysis may not be met. Therefore, the leakage must be restored to within limits within 4 hours. Restoration can be accomplished by isolating the penetration that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated, the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time is reasonable considering the time required to restore the leakage by isolating the penetration and the relative importance to the overall containment function.

E.1 and E.2

If any Required Action and associated Completion Time cannot be met~~ in MODE 1, 2, or 3~~, 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.

(continued)

BASES

~~ACTIONS (continued)~~

~~F.1 and F.2~~

~~If any Required Action and associated Completion Time cannot be met for PCIVs required to be OPERABLE during MODE 4 or 5, the unit must be placed in a condition in which the LCO does not apply. If applicable, action must be immediately initiated to suspend operations with a potential for draining the reactor vessel (OPDRVs) to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended and valve(s) are restored to OPERABLE status. If suspending an OPDRV would result in closing the residual heat removal (RHR) shutdown cooling isolation valves, an alternative Required Action is provided to immediately initiate action to restore the valve(s) to OPERABLE status. Required Action F.2 is modified by a Note that specifies this alternative action is only applicable for inoperable RHR shutdown cooling valves. This allows RHR shutdown cooling to remain in service while actions are being taken to restore the valve.~~

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.1

This SR ensures that the primary containment purge valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable. The SR is modified by a Note stating that the SR is not required to be met when the purge valves are open for the stated reasons. The Note states that these valves may be opened for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open. The 18 and 20 inch purge valves are capable of closing in the environment

(continued)

BASES (continued)

LCO

A limit that suppression pool water level be ≥ -6.25 inches with and -7.25 inches without differential pressure control and ≤ -1.0 inches is required to ensure that the primary containment conditions assumed for the safety analyses are met. Either the high or low water level limits were used in the safety analyses, depending upon which is more conservative for a particular calculation.

APPLICABILITY

In MODES 1, 2, and 3, a DBA would cause significant loads on the primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. The requirements for maintaining suppression pool water level within limits in MODE 4 or 5 is addressed in LCO 3.5.2, "RPV Water Inventory Control~~ECCS-Shutdown~~."~~.~~

ACTIONS

A.1

With suppression pool water level outside the limits, the conditions assumed for the safety analyses are not met. If water level is below the minimum level, the pressure suppression function still exists as long as main vents are covered, HPCI and RCIC turbine exhausts are covered, and S/RV quenchers are covered. If suppression pool water level is above the maximum level, protection against overpressurization still exists due to the margin in the peak containment pressure analysis and the capability of the Drywell Spray System. Therefore, continued operation for a limited time is allowed. The 2 hour Completion Time is sufficient to restore suppression pool water level to within limits. Also, it takes into account the low probability of an event impacting the suppression pool water level occurring during this interval.

(continued)

BASES (continued)

APPLICABILITY

In MODES 1, 2, and 3, a LOCA could lead to a fission product release to primary containment that leaks to secondary containment. Therefore, secondary containment OPERABILITY is required during the same operating conditions that require primary containment OPERABILITY.

In MODES 4 and 5, the probability and consequences of the LOCA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining secondary containment OPERABLE is not required in MODE 4 or 5 to ensure a control volume.~~, except for other situations for which significant releases of radioactive material can be postulated, such as during operations with a potential for draining the reactor vessel (OPDRVs).~~

ACTIONS

A.1

If secondary containment is inoperable, it must be restored to OPERABLE status within 4 hours. The 4 hour Completion Time provides a period of time to correct the problem that is commensurate with the importance of maintaining secondary containment~~ during MODES 1, 2, 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.

(continued)

BASES

ACTIONS (continued)

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. 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.

~~C.1~~

~~OPDRVs can be postulated to cause 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. 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.~~

(continued)

BASES (continued)

APPLICABILITY

In MODES 1, 2, and 3, a LOCA could lead to a fission product release to the primary containment that leaks to the secondary containment. Therefore, the OPERABILITY of SCIVs is required.

In MODES 4 and 5, the probability and consequences of these events are reduced due to pressure and temperature limitations in these MODES. Therefore, maintaining SCIVs OPERABLE is not required in MODE 4 or 5.~~, except for other situations under which significant radioactive releases can be postulated, such as during operations with a potential for draining the reactor vessel (OPDRVs).~~

ACTIONS

The ACTIONS are modified by three Notes. The first Note allows penetration flow paths to be unisolated intermittently under administrative controls. These controls consist of stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.

The second Note provides clarification that for the purpose of this LCO separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable SCIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable SCIVs are governed by subsequent Condition entry and application of associated Required Actions.

(continued)

BASES

ACTIONS (continued)

C.1 and C.2

If any Required Action and associated Completion Time of Condition A or B 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.

~~D.1~~

~~If any Required Action and associated Completion Time are not met, the plant must be placed in a condition in which the LCO does not apply. Action must be immediately initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.~~

(continued)

BASES (continued)

APPLICABLE SAFETY ANALYSES	The design basis for the SGT System is to mitigate the consequences of a loss of coolant accident (Ref. 3). For the loss of coolant accident, the SGT System is shown to be automatically initiated to reduce, via filtration and adsorption, the radioactive material released to the environment. The SGT System satisfies Criterion 3 of the NRC Policy Statement (Ref. 4).
LCO	Following a DBA, a minimum of two SGT subsystems are required to maintain the secondary containment at a negative pressure with respect to the environment and to process gaseous releases. Meeting the LCO requirements for three OPERABLE subsystems ensures operation of at least two SGT subsystems in the event of a single active failure.
APPLICABILITY	In MODES 1, 2, and 3, a DBA could lead to a fission product release to primary containment that leaks to secondary containment. Therefore, SGT System OPERABILITY is required during these MODES. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the SGT System in OPERABLE status is not required in MODE 4 or 5.~~, except for other situations under which significant releases of radioactive material can be postulated, such as during operations with a potential for draining the reactor vessel (OPDRVs).~~

(continued)

BASES (continued)

ACTIONS

A.1

With one SGT subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status in 7 days. In this Condition, the remaining two OPERABLE SGT subsystems are 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 remaining two OPERABLE redundant SGT subsystems and the low probability of a DBA occurring during this period.

B.1 and B.2

If the SGT subsystem cannot be restored to OPERABLE status within the required Completion Time~~ in MODE 1, 2, or 3~~, 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.

(continued)

BASES

ACTIONS (continued)

~~C.1 and C.2~~

~~During OPDRVs, when Required Action A.1 cannot be completed within the required Completion Time, the two OPERABLE SGT subsystems should immediately be placed in operation. This action ensures that the remaining subsystems are OPERABLE, that no failures that could prevent automatic actuation have occurred, and that any other failure would be readily detected.~~

~~An alternative to Required Action C.1 is to immediately suspend activities that represent a potential for releasing radioactive material to the secondary containment, thus placing the plant in a condition that minimizes risk. Action must immediately be initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.~~

(continued)

BASES

ACTIONS (continued)

<u>C~~D~~.1</u>

If two or more SGT subsystems are inoperable~~ in MODES 1, 2, or 3~~, the SGT system may not be capable of supporting the required radioactivity release control function. Therefore, actions are required to enter LCO 3.0.3 immediately.

~~E.1~~

~~When two SGT subsystems are inoperable, if applicable, actions must immediately be initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.~~

(continued)

BASES (continued)

APPLICABILITY

In MODES 1, 2, and 3, the CREV System must be OPERABLE to ensure that the CRE will remain habitable during and following a DBA, since the DBA could lead to a fission product release.

In MODES 4 and 5, the probability and consequences of a DBA are reduced because of the pressure and temperature limitations in these MODES. Therefore, maintaining the CREV System OPERABLE is not required in MODE 4 or 5.~~, except for during operations with potential for draining the reactor vessel (OPDRVs).~~

ACTIONS

A.1

With one CREV subsystem inoperable, for reasons other than an inoperable CRE boundary~~,~~ or inoperable HEPA filter or inoperable charcoal adsorbers (which do not impact the ability of the CREV subsystems to meet flowrate requirements specified in the VFTP), the inoperable CREV subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE CREV subsystem is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE subsystem could result in loss of the CREV System function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

BASES

ACTIONS

D.1 (continued)

which has determined that the CRE 30 day dose after the DBA does not exceed 5 rem (TEDE) without credit for either the HEPA filter or the charcoal adsorbers, and the capability of the remaining OPERABLE CREV subsystem.

E.1 and E.2

~~In MODE 1, 2, or 3, i~~If the inoperable CREV subsystem or the CRE boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

~~F.1 and F.2~~

~~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 pressurization 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 F.1 is to immediately initiate actions to suspend OPDRVs to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.~~

(continued)

BASES

ACTIONS (continued)

F~~G~~.1

If both CREV subsystems are inoperable~~ in MODE 1, 2, or 3~~ for reasons other than Condition B or Condition C, the CREV System may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

~~H.1~~

~~During OPDRVs, a) with two CREV subsystems inoperable for reasons other than an inoperable HEPA filter or inoperable charcoal adsorbers, b) with one or more CREV subsystems inoperable due to an inoperable CRE boundary, or c) if the HEPA filter and charcoal adsorbers can not be restored to OPERABLE status within the required Completion Time, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are sus~~pended.

(continued)

BASES (continued)

APPLICABILITY

In MODE 1, 2, or 3, the Control Room AC System must be OPERABLE to ensure that the control room temperature will not exceed equipment OPERABILITY limits following control room isolation.

In MODES 4 and 5, the probability and consequences of a Design Basis Accident are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the Control Room AC System OPERABLE is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:

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

a~~b~~. During CORE ALTERATIONS; and

b~~c~~. During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

A.1

With one Unit 1 and 2 control room AC subsystem inoperable, the inoperable Unit 1 and 2 control room AC subsystem must be restored to OPERABLE status within 30 days. With the unit in this condition, the remaining OPERABLE Unit 1 and 2 control room AC subsystem is adequate to perform the Unit 1 and 2 control room air conditioning function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in loss of the Unit 1 and 2 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 subsystem can provide the required protection, and the availability of alternate safety and nonsafety cooling methods.

(continued)

ACTIONS (continued)

D.1, D.2.1, and 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, or during CORE ALTERATIONS, ~~or during OPDRVs,~~ if Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE Unit 1 and 2 control room AC subsystem may be placed immediately in operation. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent actuation will occur, and that any active failure will be readily detected.

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, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.~~

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.2 AC Sources - Shutdown

BASES

BACKGROUND

A description of the AC sources is provided in the Bases for LCO 3.8.1, "AC Sources - Operating."

APPLICABLE SAFETY ANALYSES

The OPERABILITY of the minimum AC sources during MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment ensures that:

a. The facility can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate AC electrical power is provided to mitigate events postulated during shutdown, such as ~~an inadvertent draindown of the vessel or~~ a fuel handling accident.

In general, when the unit is shut down the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or loss of all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, and 3 have no specific analyses in MODES 4 and 5. Worst case bounding events are deemed not credible in MODES 4 and 5 because the

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

In the event of an accident during shutdown, this LCO ensures the capability of supporting systems necessary for avoiding immediate difficulty, assuming either a loss of all offsite power or a loss of all onsite (diesel generator (DG)) power.

The AC sources satisfy Criterion 3 of the NRC Policy Statement (Ref. 1).

LCO

One offsite circuit capable of supplying the onsite Class 1E power distribution subsystem(s) of LCO 3.8.8, "Distribution Systems - Shutdown," ensures that all required loads are powered from offsite power. Two Unit 1 and 2 DGs and Unit 3 DGs required to support OPERABLE SGT and CREV Systems, each associated with a Distribution System Engineered Safety Feature (ESF) 4.16 kV shutdown board required OPERABLE by LCO 3.8.8, ensures that a diverse LCO power source is available for providing electrical power support assuming a loss of the offsite circuit. Together, OPERABILITY of the required offsite circuit and DGs ensures the availability of sufficient AC sources to operate the plant in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents~~ and reactor vessel draindown~~).

The qualified offsite circuit(s) must be capable of maintaining rated frequency and voltage while connected to their respective 4.16 kV shutdown boards, and of accepting required loads during an accident. Qualified offsite circuits are those that are described in the FSAR and are part of the licensing basis for the unit.

(continued)

BASES

LCO (continued)

The required DGs must be capable of starting, accelerating to rated speed and voltage, connecting to respective 4.16 kV shutdown boards on detection of bus undervoltage, and accepting required loads. This sequence must be accomplished within 10 seconds. Each DG must also be capable of accepting required loads within the assumed loading sequence intervals, and must continue to operate until offsite power can be restored to the 4.16 kV shutdown boards.

Proper sequencing of loads, including tripping of nonessential loads, is a required function for DG OPERABILITY.

APPLICABILITY

The AC sources are required to be OPERABLE in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment to provide assurance that:

a. Systems that provide core cooling ~~providing adequate coolant inventory makeup~~ are available ~~for the irradiated fuel assemblies in the core in case of an inadvertent draindown of the reactor vessel~~;

b. Systems needed to mitigate a fuel handling accident are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

(continued)

BASES

APPLICABILITY (continued)

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

AC power requirements for MODES 1, 2, and 3 are covered in LCO 3.8.1.

ACTIONS

A.1

With the required offsite circuit inoperable, the remaining AC sources available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS~~,~~ and fuel movement.~~, and operations with a potential for draining the reactor vessel.~~ By the allowance of the option to declare required features inoperable that are supported by the inoperable AC source, appropriate restrictions can be implemented in accordance with the affected required feature(s) LCOs' ACTIONS.

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A have been modified by a Note to indicate that when Condition A is entered with no qualified AC power to any required 4.16 kV shutdown board, ACTIONS for LCO 3.8.8 must be immediately entered. This Note allows Condition A to provide requirements for the loss of the offsite circuit whether or not a 4.16 kV shutdown board is made inoperable. LCO 3.8.8 provides the appropriate restrictions for the situation involving an inoperable 4.16 kV shutdown board.

(continued)

BASES

ACTIONS (continued)

A.2.1, A.2.2, A.2.3, ~~A.2.4,~~ B.~~1.~~1, B.~~1.~~2, and B.~~1.~~3~~, and B.1.4~~

With no offsite circuit available or one or more DGs inoperable, the option still exists to declare all required features inoperable. However, since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. It is, therefore, required to suspend CORE ALTERATIONS~~,~~ and movement of irradiated fuel assemblies in the secondary containment.~~, and activities that could result in inadvertent draining of the reactor vessel.~~

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the plant safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.

(continued)

BASES

ACTIONS (continued)

C.1

Required Action C.1 is intended to provide assurance that a loss of offsite power, during the period that a required Unit 3 DG is inoperable, does not result in a complete loss of safety function of critical systems (i.e., SGT or CREVS). These features consist of SGT or CREVS trains redundant to trains supported by the inoperable Unit 3 DG.

The 30 day completion time takes into account the operability of the redundant required features and their offsite and DG power availability. Additionally, the 30 day completion time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and low probability of an event occurring during this period. If the redundant required feature(s) is(are) not OPERABLE, the second completion time requires immediately declaring the required feature(s), supported by the inoperable AC source, inoperable. This results in taking the appropriate Actions in the supported system specification for the inoperable function.

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the Unit 1 and 2 AC sources in other than MODES 1, 2, and 3. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR. SR 3.8.1.6 and SR 3.8.1.9 are excluded because DG auto-start on an accident signal is not required in MODES 4 and 5.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during the performance of SRs, and to preclude deenergizing a

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.5 DC Sources - Shutdown

BASES

BACKGROUND	A description of the DC sources is provided in the Bases for LCO 3.8.4, "DC Sources - Operating."
APPLICABLE SAFETY ANALYSES	The initial conditions of Design Basis Accident and transient analyses in the FSAR, Chapter 6 (Ref. 1) and Chapter 14 (Ref. 2), assume that Engineered Safety Feature systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the diesel generators (DGs), emergency auxiliaries, and control and switching during all MODES of operation. The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY. The OPERABILITY of the minimum DC electrical power sources during MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment ensures that: a. The facility can be maintained in the shutdown or refueling condition for extended periods; b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and c. Adequate DC electrical power is provided to mitigate events postulated during shutdown, such as ~~an inadvertent draindown of the vessel or~~ a fuel handling accident. The DC sources satisfy Criterion 3 of the NRC Policy Statement (Ref. 3).

(continued)

BASES (continued)

LCO

The DC Electrical Power Systems - with: 1) each Unit DC subsystem, supporting Unit battery boards required OPERABLE by LCO 3.8.8, consisting of one 250 V battery, one battery charger, and the corresponding control equipment and interconnecting cabling supplying power to the associated Unit battery board; 2) each shutdown board DC subsystem, supporting DC shutdown boards required OPERABLE by LCO 3.8.8, consisting of one 250 V battery, its associated charger, and the corresponding control equipment and interconnecting cabling supplying power to the associated DC shutdown board; and 3) each DG DC subsystem supporting DGs required OPERABLE for 4.16 kV shutdown boards required OPERABLE by LCO 3.8.8, consisting of one 125 V battery, one battery charger, and the corresponding control equipment and interconnecting cabling. This requirement ensures the availability of sufficient DC electrical power sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents~~ and inadvertent reactor vessel draindown~~).

APPLICABILITY

The DC electrical power sources required to be OPERABLE in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment provide assurance that:

a. Required features to provide core cooling ~~adequate coolant inventory makeup~~ are available~~ for the irradiated fuel assemblies in the core in case of an inadvertent draindown of the reactor vessel~~;

b. Required features needed to mitigate a fuel handling accident are available;

(continued)

BASES

APPLICABILITY (continued)

c. Required features necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The DC electrical power requirements for MODES 1, 2, and 3 are covered in LCO 3.8.4.

ACTIONS

A.1, A.2.1, A.2.2, ~~A.2.3,~~ and A.2.34

If more than one DC distribution subsystem is required according to LCO 3.8.8, the DC subsystems remaining OPERABLE with one or more DC power sources inoperable may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS~~,~~ and fuel movement.~~, and operations with a potential for draining the reactor vessel.~~ By allowance of the option to declare required features inoperable with associated DC power sources inoperable, appropriate restrictions are implemented in accordance with the affected system LCOs' ACTIONS. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS~~,~~ and movement of irradiated fuel assemblies~~, and any activities that could result in inadvertent draining of the reactor vessel~~).

(continued)

BASES

ACTIONS

A.1, A.2.1, A.2.2, ~~A.2.3,~~ and A.2.34 (continued)

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required DC electrical power subsystems and to continue this action until restoration is accomplished in order to provide the necessary DC electrical power to the plant safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required DC electrical power subsystems should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.

SURVEILLANCE REQUIREMENTS

SR 3.8.5.1

SR 3.8.5.1 requires performance of all Surveillances required by SR 3.8.4.1 through SR 3.8.4.5. Therefore, see the corresponding Bases for LCO 3.8.4 for a discussion of each SR.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DC sources from being discharged below their capability to provide the required power supply or otherwise rendering them inoperable during the performance of SRs. It is the intent that these SRs must still be capable of being met, but actual performance is not required, unless required to support an operating unit per Section 3.8.4.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

The OPERABILITY of the minimum AC and DC electrical power sources and associated power distribution subsystems during MODES 4 and 5, and during movement of irradiated fuel assemblies in the secondary containment ensures that:

a. The facility can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate power is provided to mitigate events postulated during shutdown, such as ~~an inadvertent draindown of the vessel or~~ a fuel handling accident.

The AC and DC electrical power distribution systems satisfy Criterion 3 of the NRC Policy Statement (Ref. 3).

LCO

Various combinations of subsystems, equipment, and components are required OPERABLE by other LCOs, depending on the specific plant condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires energization of the portions of the electrical distribution system necessary to support OPERABILITY of Technical Specifications required systems, equipment, and components - both specifically addressed by their own LCO, and implicitly required by the definition of OPERABILITY.

(continued)

BASES

LCO (continued)

In addition, some components that may be required by Unit 1 receive power through the Unit 3 electrical power distribution subsystems (e.g., Standby Gas Treatment (SGT) System, and Control Room Emergency Ventilation System (CREVS)). Therefore, the Unit 3 AC and DC electrical power distribution subsystems needed to support the required equipment must also be OPERABLE.

For a unit in MODE 4 or 5, the AC and DC boards can be placed on their alternate feeder breakers and considered OPERABLE as long as the restrictions on the associated drawings are met.

Maintaining these portions of the distribution system energized ensures the availability of sufficient power to operate the plant in a safe manner to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents ~~and inadvertent reactor vessel draindown~~).

APPLICABILITY

The AC and DC electrical power distribution subsystems required to be OPERABLE in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment provide assurance that:

a. Systems that provide core cooling ~~to provide adequate coolant inventory makeup~~ are available ~~for the irradiated fuel in the core in case of an inadvertent draindown of the reactor vessel~~;

b. Systems needed to mitigate a fuel handling accident are available;

(continued)

BASES

APPLICABILITY (continued)

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The AC and DC electrical power distribution subsystem requirements for MODES 1, 2, and 3 are covered in LCO 3.8.7.

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, and A.2.4~~, and A.2.5~~

Although redundant required features may require redundant divisions of electrical power distribution subsystems to be OPERABLE, one OPERABLE distribution subsystem division may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and ~~,~~ fuel movement.~~, and operations with a potential for draining the reactor vessel.~~ By allowing the option to declare required features associated with an inoperable distribution subsystem inoperable, appropriate restrictions are implemented in accordance with the affected distribution subsystem LCO's Required Actions. In many instances this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made, (i.e., to suspend CORE ALTERATIONS~~,~~ and movement of irradiated fuel assemblies in the secondary containment~~, and any activities that could result in inadvertent draining of the reactor vessel~~).

(continued)

BASES

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, and A.2.4~~, and A.2.5~~ (continued)

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC and DC electrical power distribution subsystems and to continue this action until restoration is accomplished in order to provide the necessary power to the plant safety systems.

Notwithstanding performance of the above conservative Required Actions, a required residual heat removal-shutdown cooling (RHR-SDC) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.4 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the RHR-SDC ACTIONS would not be entered. Therefore, Required Action A.2.5 is provided to direct declaring RHR-SDC inoperable, which results in taking the appropriate RHR-SDC ACTIONS.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required distribution subsystems should be completed as quickly as possible in order to minimize the time the plant safety systems may be without power.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

MODE 4 conditions, the stored energy in the reactor core will be very low. Under these conditions, the potential for failed fuel and a subsequent increase in coolant activity above the LCO 3.4.6, "RCS Specific Activity," limits are minimized. In addition, the secondary containment will be OPERABLE, in accordance with this Special Operations LCO, and will be capable of handling any airborne radioactivity or steam leaks that could occur during the performance of hydrostatic or leak testing. The required pressure testing conditions provide adequate assurance that the consequences of a steam leak will be conservatively bounded by the consequences of the postulated main steam line break outside of primary containment described in Reference 2. Therefore, these requirements will conservatively limit radiation releases to the environment.

In the unlikely event of ~~a large~~any primary system leak that could result in draining of the RPV, the reactor vessel would rapidly depressurize~~, allowing the low pressure core cooling systems to operate~~. The make-up capability ~~of the low pressure coolant injection and core spray subsystems, as~~ required in MODE 4 by LCO 3.5.2, "RPV Water Inventory Control~~ECCS – Shutdown~~," would be more than adequate to keep the RPV water level above the TAF ~~core flooded~~ under this low decay heat load condition. Small system leaks would be detected by leakage inspections before significant inventory loss occurred.

For the purposes of this test, the protection provided by normally required MODE 4 applicable LCOs, in addition to the secondary containment requirements required to be met by this Special Operations LCO, will ensure acceptable consequences during normal hydrostatic test conditions and during postulated accident conditions.

As described in LCO 3.0.7, compliance with Special Operations LCOs is optional, and therefore, no criteria of the NRC Policy Statement apply. Special Operations LCOs provide flexibility to perform certain operations by appropriately modifying

(continued)