UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 3, 2016

Mr. Mark E. Reddemann
Chief Executive Officer
Energy Northwest
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION - ISSUANCE OF AMENDMENT RE: ADOPTION OF TECHNICAL SPECIFICATION TASK FORCE TRAVELER TSTF-425, REVISION 3 (CAC NO. MF6042)

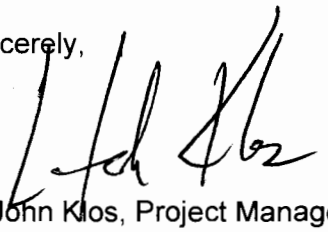
Dear Mr. Reddemann:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 238 to Renewed Facility Operating License No. NPF-21 for the Columbia Generating Station. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated March 17, 2015, as supplemented by letters dated September 17, October 29, November 17, and December 28, 2015; and April 7, May 11, and June 22, 2016.

The amendment revises the TSs by relocating specific surveillance frequencies to a licensee-controlled program consistent with NRC-approved Technical Specifications Task Force Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF [Risk-Informed Technical Specifications Task Force] Initiative 5b," dated March 18, 2009. The availability of this TS improvement program was announced in the *Federal Register* on July 6, 2009 (74 FR 31996). Energy Northwest has proposed certain plant-specific variations and deviations from TSTF-425, Revision 3, as described in its application dated March 17, 2015.

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,



L. John Klos, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:
1. Amendment No. 238 to NPF-21
2. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ENERGY NORTHWEST

DOCKET NO. 50-397

COLUMBIA GENERATING STATION

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 238
License No. NPF-21

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

   A. The application for amendment by Energy Northwest (licensee), dated March 17, 2015, as supplemented by letters dated September 17, October 29, November 17, and December 28, 2015; and April 7, May 11, and June 22, 2016, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-21 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 238 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 120 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert J. Pascarelli, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. NPF-21
and Technical Specifications

Date of Issuance: November 3, 2016

ATTACHMENT TO LICENSE AMENDMENT NO. 238

COLUMBIA GENERATING STATION

RENEWED FACILITY OPERATING LICENSE NO. NPF-21

DOCKET NO. 50-397

Replace the following pages of the Renewed Facility Operating License No. NPF-21 and Appendix A, Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Facility Operating License

REMOVE	INSERT
-4-	-4-

Technical Specifications

REMOVE	INSERT
3.1.3-4	3.1.3-4
3.1.4-2	3.1.4-2
3.1.5-3	3.1.5-3
3.1.6-2	3.1.6-2
3.1.7-1	3.1.7-1
3.1.7-2	3.1.7-2
3.1.7-3	3.1.7-3
3.1.8-2	3.1.8-2
3.2.1-1	3.2.1-1
3.2.2-1	3.2.2-1
3.2.3-1	3.2.3-1
3.3.1.1-11	3.3.1.1-11
3.3.1.1-12	3.3.1.1-12
3.3.1.1-13	3.3.1.1-13
3.3.1.1-14	3.3.1.1-14
3.3.1.2-2	3.3.1.2-2
3.3.1.2-3	3.3.1.2-3
3.3.1.2-4	3.3.1.2-4
3.3.2.1-9	3.3.2.1-9
3.3.2.1-10	3.3.2.1-10
3.3.2.1-11	3.3.2.1-11
3.3.2.1-12	3.3.2.1-12
----------	3.3.2.1-13
3.3.2.2-2	3.3.2.2-2
3.3.3.1-2	3.3.3.1-2
3.3.3.1-3	3.3.3.1-3
----------	3.3.3.1-4
3.3.3.2-1	3.3.3.2-1

REMOVE	INSERT
3.3.3.2-2	3.3.3.2-2
3.3.4.1-2	3.3.4.1-2
3.3.4.1-3	3.3.4.1-3
3.3.4.2-2	3.3.4.2-2
3.3.4.2-3	3.3.4.2-3
3.3.5.1-5	3.3.5.1-5
3.3.5.1-6	3.3.5.1-6
3.3.5.1-7	3.3.5.1-7
3.3.5.1-8	3.3.5.1-8
3.3.5.1-9	3.3.5.1-9
3.3.5.1-10	3.3.5.1-10
----------	3.3.5.1-11
3.3.5.2-3	3.3.5.2-3
3.3.6.1-3	3.3.6.1-3
3.3.6.1-4	3.3.6.1-4
3.3.6.2-2	3.3.6.2-2
3.3.6.2-3	3.3.6.2-3
----------	3.3.6.2-4
3.3.7.1-2	3.3.7.1-2
3.3.7.1-3	3.3.7.1-3
----------	3.3.7.1-4
3.3.8.1-2	3.3.8.1-2
3.3.8.1-3	3.3.8.1-3
----------	3.3.8.1-4
3.3.8.2-2	3.3.8.2-2
3.3.8.2-3	3.3.8.2-3
3.4.1-4	3.4.1-4
3.4.2-2	3.4.2-2
3.4.3-1	3.4.3-1
3.4.4-2	3.4.4-2
3.4.5-2	3.4.5-2
3.4.7-3	3.4.7-3
3.4.8-2	3.4.8-2
3.4.9-2	3.4.9-2
3.4.10-2	3.4.10-2
3.4.11-2	3.4.11-2
3.4.11-4	3.4.11-4
3.4.12-1	3.4.12-1
3.5.1-4	3.5.1-4
3.5.1-5	3.5.1-5
3.5.2-2	3.5.2-2
3.5.2-3	3.5.2-3
----------	3.5.2-4
3.5.3-2	3.5.3-2
----------	3.5.3-3
3.6.1.1-2	3.6.1.1-2

REMOVE	INSERT
3.6.1.1-3	3.6.1.1-3
3.6.1.2-4	3.6.1.2-4
3.6.1.3-6	3.6.1.3-6
3.6.1.3-7	3.6.1.3-7
3.6.1.3-8	3.6.1.3-8
3.6.1.4-1	3.6.1.4-1
3.6.1.5-2	3.6.1.5-2
3.6.1.6-2	3.6.1.6-2
----------	3.6.1.6-3
3.6.1.7-2	3.6.1.7-2
----------	3.6.1.7-3
3.6.2.1-3	3.6.2.1-3
3.6.2.2-1	3.6.2.2-1
3.6.2.3-2	3.6.2.3-2
3.6.3.2-1	3.6.3.2-1
----------	3.6.3.2-2
3.6.3.3-1	3.6.3.3-1
3.6.4.1-2	3.6.4.1-2
3.6.4.2-3	3.6.4.2-3
3.6.4.3-2	3.6.4.3-2
3.7.1-2	3.7.1-2
3.7.1-3	3.7.1-3
3.7.2-1	3.7.2-1
3.7.3-3	3.7.3-3
3.7.4-2	3.7.4-2
3.7.5-2	3.7.5-2
3.7.6-1	3.7.6-1
----------	3.7.6-2
3.7.7-1	3.7.7-1
3.8.1-5	3.8.1-5
3.8.1-6	3.8.1-6
3.8.1-7	3.8.1-7
3.8.1-8	3.8.1-8
3.8.1-9	3.8.1-9
3.8.1-10	3.8.1-10
3.8.1-11	3.8.1-11
3.8.1-12	3.8.1-12
3.8.1-13	3.8.1-13
3.8.1-14	3.8.1-14
3.8.1-15	3.8.1-15
3.8.1-16	3.8.1-16
3.8.3-2	3.8.3-2
3.8.3-3	3.8.3-3
3.8.4-4	3.8.4-4
3.8.6-3	3.8.6-3
3.8.6-4	3.8.6-4

REMOVE	INSERT
---	3.8.6-5
3.8.7-2	3.8.7-2
3.8.8-2	3.8.8-2
3.9.1-1	3.9.1-1
3.9.2-1	3.9.2-1
---	3.9.2-2
3.9.3-1	3.9.3-1
3.9.5-1	3.9.5-1
3.9.6-1	3.9.6-1
3.9.7-1	3.9.7-1
3.9.8-2	3.9.8-2
3.9.9-2	3.9.9-2
3.10.2-2	3.10.2-2
3.10.3-3	3.10.3-3
3.10.4-3	3.10.4-3
3.10.5-2	3.10.5-2
3.10.6-2	3.10.6-2
3.10.8-7	3.10.8-7
5.5-11	5.5-11
---	5.5-12

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 238 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

a. For Surveillance Requirements (SRs) not previously performed by existing SRs or other plant tests, the requirement will be considered met on the implementation date and the next required test will be at the interval specified in the Technical Specifications as revised in Amendment No. 149.

(3) Deleted.

(4) Deleted.

(5) Deleted.

(6) Deleted.

(7) Deleted.

(8) Deleted.

(9) Deleted.

(10) Deleted.

(11) Shield Wall Deferral (Section 12.3.2, SSER #4, License Amendment #7)

The licensee shall complete construction of the deferred shield walls and window as identified in Attachment 3, as amended by this license amendment.

(12) Deleted.

(13) Deleted.

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	In accordance with the Surveillance Frequency Control Program
SR 3.1.3.2	----------NOTE---------- Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. ---------- Insert each partially withdrawn control rod at least one notch.	In accordance with the Surveillance Frequency Control Program
SR 3.1.3.3	Verify each control rod scram time from fully withdrawn to notch position 5 is $\leq$ 7 seconds.	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4
SR 3.1.3.4	Verify each control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position AND Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling

SURVEILLANCE REQUIREMENTS

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

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

	SURVEILLANCE	FREQUENCY
SR 3.1.4.1	Verify each control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after each reactor shutdown ≥ 120 days
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after fuel movement within the affected core cell AND Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

ACTION

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

SURVEILLANCE REQUIREMENTS

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B (continued)	B.2 Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

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

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SLC subsystem inoperable.	A.1 Restore SLC subsystem to OPERABLE status.	7 days
B. Two SLC subsystems inoperable.	B.1 Restore one SLC subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is ≥ 4587 gallons.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is within the limits of Figure 3.1.7-1.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.3	Verify continuity of explosive charge.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.4	Verify the concentration of boron in solution is within the limits of Figure 3.1.7-1.	In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after water or boron is added to solution AND Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-1
SR 3.1.7.5	Verify each SLC subsystem manual and power operated valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.7.6	Verify each pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1220 psig.	In accordance with the Inservice Testing Program
SR 3.1.7.7	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.8	Verify all heat traced piping between storage tank and pump suction valve is unblocked.	In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-1
SR 3.1.7.9	Verify sodium pentaborate enrichment is ≥ 44.0 atom percent B-10.	Prior to addition to SLC Tank

SURVEILLANCE REQUIREMENTS

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

3.2 POWER DISTRIBUTION LIMITS

3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

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

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any APLHGR not within limits.	A.1 Restore APLHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	Verify all APLHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)

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

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any MCPR not within limits.	A.1 Restore MCPR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify all MCPRs are greater than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.3 LINEAR HEAT GENERATION RATE (LHGR)

LCO 3.2.3 All LHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any LHGR not within limits.	A.1 Restore LHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify all LHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
I. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	I.1	Initiate alternate method to detect and suppress thermal hydraulic instability oscillations.	12 hours
	AND		
		----------NOTE---------- LCO 3.0.4 is not applicable. ----------	
	I.2	Restore required channels to OPERABLE	120 days
J. Required Action and associated Completion Time of Condition I not met.	J.1	Reduce THERMAL POWER to less than the value specified in the COLR.	4 hours

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.1.1-1 to determine which SRs apply for each RPS Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains RPS trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.2	----------NOTE---------- Not required to be performed until 12 hours after THERMAL POWER ≥ 25% RTP. ---------- Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power ≤ 2% RTP while operating at ≥ 25% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.3	----------NOTE---------- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.4	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.5	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to withdrawing SRMs from the fully inserted position
SR 3.3.1.1.6	----------NOTE---------- Only required to be met during entry into MODE 2 from MODE 1. ---------- Verify the IRM and APRM channels overlap.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.7	Calibrate the local power range monitors.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.8	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.9	Deleted.	
SR 3.3.1.1.10	----------NOTES---------- 1. Neutron detectors are excluded. 2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. 3. For Functions 2.b and 2.f, the recirculation flow transmitters that feed the APRMs are included. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.11	Deleted.	
SR 3.3.1.1.12	Verify Turbine Throttle Valve - Closure, and Turbine Governor Valve Fast Closure Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 30% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.13	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.14	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.15	----------NOTES---------- 1. Neutron detectors are excluded. 2. Channel sensors for Functions 3 and 4 are excluded. ---------- Verify the RPS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.16	----------NOTES---------- 1. For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. 2. For Functions 2.b and 2.f, the CHANNEL FUNCTIONAL TEST includes the recirculation flow input processing, excluding the flow transmitters. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.17	Verify the OPRM is not bypassed when APRM Simulated Thermal Power is greater than or equal to the value specified in the COLR and recirculation drive flow is less than the value specified in the COLR.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more required SRMs inoperable in MODE 5.	E.1 Suspend CORE ALTERATIONS except for control rod insertion. AND E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.2	----------NOTES---------- 1. Only required to be met during CORE ALTERATIONS. 2. One SRM may be used to satisfy more than one of the following. ---------- Verify an OPERABLE SRM detector is located in: a. The fueled region; b. The core quadrant where CORE ALTERATIONS are being performed when the associated SRM is included in the fueled region; and c. A core quadrant adjacent to where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.3	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.4	----------NOTE---------- Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. ---------- Verify count rate is: a. ≥ 3.0 cps with a signal to noise ratio ≥ 2:1 or b. ≥ 0.7 cps with a signal to noise ratio ≥ 20:1.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.1.2.5	----------NOTE---------- The determination of signal to noise ratio is not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. ---------- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.6	----------NOTE---------- Not required to be performed until 12 hours after IRMs on Range 2 or below. ---------- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.7	----------NOTES---------- 1. Neutron detectors are excluded. 2. Not required to be performed until 12 hours after IRMs on Range 2 or below. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

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

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

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.2	----------NOTE---------- Not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.3	----------NOTE---------- Not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1.4	----------NOTE---------- Neutron detectors are excluded. ---------- Verify the RBM is not bypassed: a. Low Power Range - Upscale Function is not bypassed when APRM Simulated Thermal Power is ≥ 28% and < 63% RTP and peripheral control rod is not selected. b. Intermediate Power Range - Upscale Function is not bypassed when APRM Simulated Thermal Power is ≥ 63% and < 83% RTP and peripheral control rod is not selected. c. High Power Range - Upscale Function is not bypassed when APRM Simulated Thermal Power is ≥ 83% and peripheral control rod is not selected.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.5	----------NOTE---------- Neutron detectors are excluded. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.6	Verify the RWM is not bypassed when THERMAL POWER is ≤ 10% RTP.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1.7	----------NOTE---------- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

Table 3.3.2.1-1 (page 1 of 2)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Rod Block Monitor				
a. Low Power Range – Upscale	(a)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5[(d),(e)]	(f)
b. Intermediate Power Range – Upscale	(b)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5[(d),(e)]	(f)
c. High Power Range – Upscale	(c)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5[(d),(e)]	(f)
d. Inop	(a),(b),(c)	2	SR 3.3.2.1.1	NA

(a) APRM Simulated Thermal Power is ≥ 28% and < 63% RTP and MCPR is less than the limit specified in the COLR and no peripheral control rod selected.

(b) APRM Simulated Thermal Power is ≥ 63% and < 83% RTP and MCPR is less than the limit specified in the COLR and no peripheral control rod selected.

(c) APRM Simulated Thermal Power is ≥ 83% and MCPR is less than the limit specified in the COLR and no peripheral control rod selected.

(d) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(e) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in the Licensee Controlled Specifications.

(f) Allowable Value Specified in the COLR.

Table 3.3.2.1-1 (page 2 of 2)
Control Rod Block Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2.	Rod Worth Minimizer	1[(g)], 2[(g)]	1	SR 3.3.2.1.2 SR 3.3.2.1.3 SR 3.3.2.1.6 SR 3.3.2.1.8	NA
3.	Reactor Mode Switch - Shutdown Position	(h)	2	SR 3.3.2.1.7	NA

(g) With THERMAL POWER ≤ 10% RTP.

(h) Reactor mode switch in the shutdown position.

SURVEILLANCE REQUIREMENTS

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

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided feedwater and main turbine high water level trip capability is maintained.

	SURVEILLANCE	FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 56.0 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST, including valve actuation.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1 Be in MODE 3.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.4.	Immediately

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.1.2	Deleted	
SR 3.3.3.1.3	Perform CHANNEL CALIBRATION for Functions 1, 2, 4, 5, and 10.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.4	Perform CHANNEL CALIBRATION for Functions 3, 6, and 7.	In accordance with the Surveillance Frequency Control Program

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

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1. Reactor Vessel Pressure	2	E
2. Reactor Vessel Water Level		
a. -150 inches to +60 inches	2	E
b. -310 inches to –110 inches	2	E
3. Suppression Pool Water Level		
a. -25 inches to +25 inches	2	E
b. 2 ft to 52 ft	2	E
4. Suppression Chamber Pressure	2	E
5. Drywell Pressure		
a. -5 psig to +3 psig	2	E
b. 0 psig to 25 psig	2	E
c. 0 psig to 180 psig	2	E
6. Primary Containment Area Radiation	2	F
7. Penetration Flow Path PCIV Position	2 per penetration flow path[(a) (b)]	E
8. Deleted		
9. Deleted		
10. ECCS Pump Room Flood Level	5	E

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

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

3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

LCO 3.3.3.2 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Function.

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

SURVEILLANCE REQUIREMENTS

---NOTE---

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

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.2	Perform CHANNEL CALIBRATION for each required instrumentation channel, except the suppression pool water level instrumentation channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for the suppression pool water level instrumentation channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.2.4	Verify each required control circuit and transfer switch is capable of performing the intended functions.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with EOC-RPT trip capability not maintained. AND MCPR limit for inoperable EOC-RPT not made applicable.	B.1 Restore EOC-RPT trip capability. OR B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.	2 hours 2 hours
C. Required Action and associated Completion Time not met.	C.1 Remove the associated recirculation pump from service. OR C.2 Reduce THERMAL POWER to < 30% RTP.	4 hours 4 hours

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.4.1.2.a	Perform CHANNEL CALIBRATION. The Allowable Value shall be: TTV - Closure: ≤ 7% closed.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.2.b	Perform CHANNEL CALIBRATION. The Allowable Value shall be: TGV Fast Closure, Trip Oil Pressure - Low: ≥ 1000 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.3	Verify TTV – Closure and TGV Fast Closure, Trip Oil Pressure – Low Functions are not bypassed when THERMAL POWER is ≥ 30% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST, including breaker actuation.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.5	----------NOTE---------- Breaker arc suppression time may be assumed from the most recent performance of SR 3.3.4.1.6. ---------- Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.6	Determine RPT breaker arc suppression time.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1 Restore ATWS-RPT trip capability for one Function.	1 hour
D. Required Action and associated Completion Time not met.	D.1 Remove the associated recirculation pump from service. OR D.2 Be in MODE 2.	6 hours 6 hours

SURVEILLANCE REQUIREMENTS

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.1	Perform CHANNEL CHECK for Reactor Vessel Water Level - Low Low, Level 2 Function.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level - Low Low, Level 2: ≥ -58 inches; and b. Reactor Vessel Steam Dome Pressure - High: ≤ 1143 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST, including breaker actuation.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Required Action and associated Completion Time of Condition B, C, D, E, F, or G not met.	H.1 Declare associated supported feature(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

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

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

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

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.1.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2, 3, 4[(a)], 5[(a)]	2[(b)]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ -142.3 inches
b. Drywell Pressure - High	1, 2, 3	2[(b)]	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≤ 1.88 psig
c. LPCS Pump Start - LOCA Time Delay Relay	1, 2, 3, 4[(a)], 5[(a)]	1[(e)]	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 8.53 seconds and ≤ 10.64 seconds
d. LPCI Pump A Start - LOCA Time Delay Relay	1, 2, 3, 4[(a)], 5[(a)]	1[(e)]	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 17.24 seconds and ≤ 21.53 seconds
e. LPCI Pump A Start - LOCA/LOOP Time Delay Relay	1, 2, 3, 4[(a)], 5[(a)]	1	C	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.6	≥ 3.04 seconds and ≤ 6.00 seconds
f. Reactor Vessel Pressure - Low (Injection Permissive)	1, 2, 3	1 per valve	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 448 psig and ≤ 492 psig
	4[(a)], 5[(a)]	1 per valve	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 448 psig and ≤ 492 psig

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

(b) Also required to initiate the associated diesel generator (DG).

(e) Also supports OPERABILITY of 230 kV offsite power circuit pursuant to LCO 3.8.1 and LCO 3.8.2.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. LPCI and LPCS Subsystems					
g. LPCS Pump Discharge Flow - Low (Minimum Flow)	1, 2, 3, 4[(a)], 5[(a)]	1	E	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 668 gpm and ≤ 1067 gpm
h. LPCI Pump A Discharge Flow - Low (Minimum Flow)	1, 2, 3, 4[(a)], 5[(a)]	1	E	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 605 gpm and ≤ 984 gpm
i. Manual Initiation	1, 2, 3, 4[(a)], 5[(a)]	2	C	SR 3.3.5.1.6	NA
2. LPCI B and LPCI C Subsystems					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2, 3, 4[(a)], 5[(a)]	2[(b)]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ -142.3 inches
b. Drywell Pressure - High	1, 2, 3	2[(b)]	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≤ 1.88 psig
c. LPCI Pump B Start - LOCA Time Delay Relay	1, 2, 3, 4[(a)], 5[(a)]	1[(e)]	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 17.24 seconds and ≤ 21.53 seconds
d. LPCI Pump C Start - LOCA Time Delay Relay	1, 2, 3, 4[(a)], 5[(a)]	1[(e)]	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 8.53 seconds and ≤ 10.64 seconds
e. LPCI Pump B Start - LOCA/LOOP Time Delay Relay	1, 2, 3, 4[(a)], 5[(a)]	1	C	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.6	≥ 3.04 seconds and ≤ 6.00 seconds

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

(b) Also required to initiate the associated DG.

(e) Also supports OPERABILITY of 230 kV offsite power circuit pursuant to LCO 3.8.1 and LCO 3.8.2.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI B and LPCI C Subsystems					
f. Reactor Vessel Pressure - Low (Injection Permissive)	1, 2, 3,	1 per valve	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 448 psig and ≤ 492 psig
	4[(a)], 5[(a)]	1 per valve	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 448 psig and ≤ 492 psig
g. LPCI Pumps B & C Discharge Flow - Low (Minimum flow)	1, 2, 3, 4[(a)], 5[(a)]	1 per pump	E	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 605 gpm and ≤ 984 gpm
h. Manual Initiation	1, 2, 3, 4[(a)], 5[(a)]	2	C	SR 3.3.5.1.6	NA
3. High Pressure Core Spray (HPCS) System					
a. Reactor Vessel Water Level - Low Low, Level 2	1, 2, 3, 4[(a)], 5[(a)]	4[(b)]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ -58 inches
b. Drywell Pressure - High	1, 2, 3	4[(b)]	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≤ 1.88 psig
c. Reactor Vessel Water Level - High, Level 8	1, 2, 3, 4[(a)], 5[(a)]	2	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≤ 56.0 inches
d. Condensate Storage Tank Level - Low	1, 2, 3, 4[(c)], 5[(c)]	2	D	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 448 ft 1 inch elevation

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

(b) Also required to initiate the associated DG.

(c) When HPCS is OPERABLE for compliance with LCO 3.5.2, "ECCS - Shutdown," and aligned to the condensate storage tank while tank water level is not within the limit of SR 3.5.2.2.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCS System					
e. Suppression Pool Water Level - High	1, 2, 3	2	D	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≤ 466 ft 11 inches elevation
f. HPCS System Flow Rate - Low (Minimum Flow)	1, 2, 3, 4[(a)], 5[(a)]	1	E	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 1200 gpm and ≤ 1512 gpm
g. Manual Initiation	1, 2, 3, 4[(a)], 5[(a)]	2	C	SR 3.3.5.1.6	NA
4. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ -142.3 inches
b. ADS Initiation Timer	1, 2[(d)], 3[(d)]	1	G	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.6	≤ 115.0 seconds
c. Reactor Vessel Water Level - Low, Level 3 (Permissive)	1, 2[(d)], 3[(d)]	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 9.5 inches
d. LPCS Pump Discharge Pressure - High	1, 2[(d)], 3[(d)]	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 119 psig and ≤ 171 psig
e. LPCI Pump A Discharge Pressure - High	1, 2[(d)], 3[(d)]	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 116 psig and ≤ 134 psig

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

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

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

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4.	ADS Trip System A					
f.	Accumulator Backup Compressed Gas System Pressure - Low	1, 2[(d)], 3[(d)]	3	F	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 151.4 psig
g.	Manual Initiation	1, 2[(d)], 3[(d)]	4	G	SR 3.3.5.1.6	NA
5.	ADS Trip System B					
a.	Reactor Vessel Water Level - Low Low Low, Level 1	1, 2[(d)], 3[(d)]	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ -142.3 inches
b.	ADS Initiation Timer	1, 2[(d)], 3[(d)]	1	G	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.6	≤ 115.0 seconds
c.	Reactor Vessel Water Level - Low, Level 3 (Permissive)	1, 2[(d)], 3[(d)]	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 9.5 inches
d.	LPCI Pumps B & C Discharge Pressure - High	1, 2[(d)], 3[(d)]	2 per pump	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 116 psig and ≤ 134 psig
e.	Accumulator Backup Compressed Gas System Pressure - Low	1, 2[(d)], 3[(d)]	3	F	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	≥ 151.4 psig
f.	Manual Initiation	1, 2[(d)], 3[(d)]	4	G	SR 3.3.5.1.6	NA

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

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 Functions 2 and 4; and (b) for up to 6 hours for Functions 1 and 3 provided the associated Function maintains RCIC initiation capability.

	SURVEILLANCE	FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.3	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.7	----------NOTE---------- Channel sensors for Functions 1.a, 1.b, and 1.c are excluded. ----------	
	Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1 Place the associated standby gas treatment (SGT) subsystem in operation. OR	1 hour
	C.2.2 Declare associated SGT subsystem inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2	1, 2, 3, (a)	2[(c)]	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≥ -58 inches
2. Drywell Pressure - High	1, 2, 3	2[(c)]	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 1.88 psig
3. Reactor Building Vent Exhaust Plenum Radiation - High	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	≤ 16.0 mR/hr
4. Manual Initiation	1, 2, 3, (a)	4	SR 3.3.6.2.4	NA

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

(b) Deleted

(c) Also required to initiate the associated LOCA Time Delay Relay Function pursuant to LCO 3.3.5.1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition B or C not met.	D.1 Place associated CREF subsystem in the pressurization mode of operation. OR D.2 Declare associated CREF subsystem inoperable.	1 hour 1 hour

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.7.1-1 to determine which SRs apply for each CREF System Function.

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

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Filtration 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 Low, Level 2	1, 2, 3, (a)	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≥ -58 inches
2.	Drywell Pressure - High	1, 2, 3	2	C	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 1.88 psig
3.	Reactor Building Vent Exhaust Plenum Radiation - High	1, 2, 3, (a)	2	B	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 16.0 mR/hr

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition B or C not met.	D.1 Declare associated DG inoperable. OR ----------NOTE---------- Only applicable for Functions 1.c and 1.d. ---------- D.2.1 Open offsite circuit supply breaker to associated 4.16 kV ESF bus. AND D.2.2 Declare associated offsite circuit inoperable.	Immediately Immediately Immediately

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

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

FUNCTION	REQUIRED CHANNELS PER DIVISION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Divisions 1 and 2 - 4.16 kV Emergency Bus Undervoltage				
a. TR-S Loss of Voltage - 4.16 kV Basis	2	B	SR 3.3.8.1.2 SR 3.3.8.1.4	≥ 2450 V and ≤ 3135 V
b. TR-S Loss of Voltage - Time Delay	2	B	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2.95 seconds and ≤ 7.1 seconds
c. TR-B Loss of Voltage - 4.16 kV Basis	1	C	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2450 V and ≤ 3135 V
d. TR-B Loss of Voltage - Time Delay	1	C	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 3.06 seconds and ≤ 9.28 seconds
e. Degraded Voltage - 4.16 kV Basis	2[(a)]	C	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.4	≥ 3685 V and ≤ 3755 V
f. Degraded Voltage - Primary Time Delay	2[(a)]	C	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.4	≥ 5.0 seconds and ≤ 5.3 seconds
g. Degraded Voltage - Secondary Time Delay	1	C	SR 3.3.8.1.2 SR 3.3.8.1.4	≥ 2.63 seconds and ≤ 3.39 seconds
2. Division 3 - 4.16 kV Emergency Bus Undervoltage				
a. Los of Voltage - 4.16 kV Basis	2	B	SR 3.3.8.1.2 SR 3.3.8.1.4	≥ 2450 V and ≤ 3135 V
b. Loss of voltage - Time Delay	2	B	SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 1.87 seconds and ≤ 3.73 seconds
c. Degraded Voltage - 4.16 kV Basis	2	C	SR 3.3.8.1.2 SR 3.3.8.1.4	≥ 3685 V and ≤ 3755 V
d. Degraded Voltage - Time Delay	2	C	SR 3.3.8.1.2 SR 3.3.8.1.4	≥ 7.36 seconds and ≤ 8.34 seconds

(a) The Degraded Voltage - 4.16 kV Basis and - Primary Time Delay Functions must be associated with one another.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met in MODE 4 or 5 with both RHR SDC suction isolation valves open.	D.1 Initiate action to restore one electric power monitoring assembly to OPERABLE status for inservice power supply(s) supplying required instrumentation. OR D.2 Initiate action to isolate the RHR SDC System.	Immediately Immediately
E. Required Action and associated Completion Time of Condition A or B not met in MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.	E.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

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

When an RPS electric power monitoring assembly is placed in an inoperable status solely for performance of required Surveillances, entry into the associated Conditions and Required Actions may be delayed for up to 6 hours provided the other RPS electric power monitoring assembly for the associated power supply maintains trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	----------NOTE---------- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 133.8 V, with time delay ≤ 3.46 seconds; b. Undervoltage ≥ 110.8 V, with time delay ≤ 3.46 seconds; and c. Underfrequency ≥ 57 Hz, with time delay ≤ 3.46 seconds.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2.3	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR No recirculation loops in operation.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	----------NOTE---------- Not required to be performed until 24 hours after both recirculation loops are in operation. ---------- Verify recirculation loop drive flow mismatch with both recirculation loops in operation is: a. ≤ 10% of rated recirculation loop drive flow when operating at < 70% of rated core flow; and b. ≤ 5% of rated recirculation loop drive flow when operating at ≥ 70% of rated core flow.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	----------NOTES---------- 1. Not required to be performed until 4 hours after associated recirculation loop is in operation. 2. Not required to be performed until 24 hours after > 25% RTP. ----------	
	Verify at least two of the following criteria (a, b, and c) are satisfied for each operating recirculation loop: a. Recirculation loop drive flow versus recirculation pump speed differs by ≤ 10% from established patterns. b. Recirculation loop drive flow versus total core flow differs by ≤ 10% from established patterns. c. Each jet pump diffuser to lower plenum differential pressure differs by ≤ 20% from established patterns, or each jet pump flow differs by ≤ 10% from established patterns.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 Safety/Relief Valves (SRVs) - ≥ 25% RTP

LCO 3.4.3 The safety function of 12 SRVs shall be OPERABLE, with two SRVs in the lowest two lift setpoint groups OPERABLE.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required SRVs inoperable.	A.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify the safety function lift setpoints of the required SRVs are as follows: Number of SRVs / Setpoint (psig) 2 / 1165 ± 34.9 4 / 1175 ± 35.2 4 / 1185 ± 35.5 4 / 1195 ± 35.8 4 / 1205 ± 36.1	In accordance with the Inservice Testing Program
SR 3.4.3.2	Verify each required SRV opens when manually actuated.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.4.1	Verify the safety function lift setpoints of the required SRVs are as follows: Number of SRVs / Setpoint (psig) 2 / 1165 ± 34.9 4 / 1175 ± 35.2 4 / 1185 ± 35.5 4 / 1195 ± 35.8 4 / 1205 ± 36.1	In accordance with the Inservice Testing Program
SR 3.4.4.2	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each required SRV opens when manually actuated.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR Pressure boundary LEAKAGE exists.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

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

	SURVEILLANCE	FREQUENCY
SR 3.4.7.1	Perform CHANNEL CHECK of required drywell atmospheric monitoring system.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.2	Perform CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.3	Perform CHANNEL CALIBRATION of required leakage detection instrumentation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	----------NOTE---------- Only required to be performed in MODE 1. ---------- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity is $\leq$ 0.2 μCi/gm.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1	Initiate action to restore one RHR shutdown cooling subsystem or one recirculation pump to operation.	Immediately
	AND		
	B.2	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	B.3	Monitor reactor coolant temperature and pressure.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	----------NOTE---------- Not required to be met until 2 hours after reactor steam dome pressure is less than 48 psig. ---------- Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1 Verify reactor coolant circulating by an alternate method. AND B.2 Monitor reactor coolant temperature and pressure.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	----------NOTE---------- Only required to be performed during RCS heatup and cooldown operations, and RCS inservice leak and hydrostatic testing. ---------- Verify: a. RCS pressure and RCS temperature are within the applicable limits specified in Figures 3.4.11-1, 3.4.11-2, and 3.4.11-3; b. RCS heatup and cooldown rates are ≤ 100°F in any 1 hour period; and c. RCS temperature change during inservice leak and hydrostatic testing is ≤ 20°F in any 1 hour period when the RCS pressure and RCS temperature are not within the limits of Figure 3.4.11-2.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.2	Verify RCS pressure and RCS temperature are within the criticality limits specified in Figure 3.4.11-3.	Once within 15 minutes prior to control rod withdrawal for the purpose of achieving criticality
SR 3.4.11.3	----------NOTE---------- Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup. ---------- Verify the difference between the bottom head coolant temperature and the reactor pressure vessel (RPV) coolant temperature is ≤ 145°F.	Once within 15 minutes prior to each startup of a recirculation pump

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.11.7	----------NOTE---------- Only required to be performed when tensioning the reactor vessel head bolting studs. ---------- Verify reactor vessel flange and head flange temperatures are ≥ 80°F.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.8	----------NOTE---------- Not required to be performed until 30 minutes after RCS temperature ≤ 90°F in MODE 4. ---------- Verify reactor vessel flange and head flange temperatures are ≥ 80°F.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.9	----------NOTE---------- Not required to be performed until 12 hours after RCS temperature ≤ 100°F in MODE 4. ---------- Verify reactor vessel flange and head flange temperatures are ≥ 80°F.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Reactor Steam Dome Pressure

LCO 3.4.12 The reactor steam dome pressure shall be ≤ 1035 psig.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor steam dome pressure not within limit.	A.1 Restore reactor steam dome pressure to within limit.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify reactor steam dome pressure is ≤ 1035 psig.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	----------NOTE---------- Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than 48 psig in MODE 3, if capable of being manually realigned and not otherwise inoperable. ---------- Verify each 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.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify ADS accumulator backup compressed gas system average pressure in the required bottles is ≥ 2200 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify each ECCS pump develops the specified flow rate with the specified differential pressure between reactor and suction source. SYSTEM / FLOW RATE / DIFFERENTIAL PRESSURE BETWEEN REACTOR AND SUCTION SOURCE LPCS: ≥ 6200 gpm: ≥ 128 psid LPCI: ≥ 7200 gpm: ≥ 26 psid HPCS: ≥ 6350 gpm: ≥ 200 psid	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.1.5	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.6	----------NOTE---------- Valve actuation may be excluded. ---------- Verify the ADS actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.7	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each required ADS valve opens when manually actuated.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.8	----------NOTE---------- ECCS actuation instrumentation is excluded. ---------- Verify the ECCS RESPONSE TIME for each ECCS injection/spray subsystem is within limits.	In accordance with the Surveillance Frequency Control Program

ACTIONS

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 one standby gas treatment subsystem to OPERABLE status.	Immediately
	AND		
	D.3	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify, for each required low pressure ECCS injection/spray subsystem, the suppression pool water level is ≥ 18 ft 6 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify, for the required High Pressure Core Spray (HPCS) System, the: a. Suppression pool water level is ≥ 18 ft 6 inches; or b. Condensate storage tank (CST) water level is ≥ 16.5 ft in a single CST or ≥ 10.5 ft in each CST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.2.3	Verify, for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	----------NOTE---------- One 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 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.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.5	Verify each required ECCS pump develops the specified flow rate with the specified differential pressure between reactor and suction source. SYSTEM / FLOW RATE / DIFFERENTIAL PRESSURE BETWEEN REACTOR AND SUCTION SOURCE LPCS ≥ 6200 gpm ≥ 128 psid LPCI ≥ 7200 gpm ≥ 26 psid HPCS ≥ 6350 gpm ≥ 200 psid	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.3	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----------	
	Verify, with reactor pressure ≤ 1035 psig and ≥ 935 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.4	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----------	
	Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.3.5	----------NOTE---------- Vessel injection may be excluded. ----------	
	Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.1.1.2	Verify drywell to suppression chamber bypass leakage is ≤ 10% of the acceptable $A / \sqrt{K}$ design value of 0.050 ft^2 at an initial differential pressure of ≥ 1.5 psid.	In accordance with the Surveillance Frequency Control Program AND 48 months following a test with bypass leakage greater than the bypass leakage limit AND 24 months following two consecutive tests with bypass leakage greater than the bypass leakage limit until two consecutive tests are less than or equal to the bypass leakage limit
SR 3.6.1.1.3	----------NOTE---------- Performance of SR 3.6.1.1.2 satisfies this surveillance. ---------- Verify individual drywell to suppression chamber vacuum relief valve bypass pathway leakage is ≤ 1.2% of the acceptable $A / \sqrt{K}$ design value of 0.050 ft^2 at an initial differential pressure of ≥ 1.5 psid.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.4	----------NOTE---------- Performance of SR 3.6.1.1.2 satisfies this surveillance. ----------	
	Verify total drywell to suppression chamber vacuum relief valve bypass leakage is ≤ 3.0% of the acceptable $A/\sqrt{K}$ design value of 0.050 ft^2 at an initial differential pressure of ≥ 1.5 psid.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.2.1	----------NOTES---------- 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1.1. ---------- Perform required primary containment air lock leakage rate testing in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.2.2	Verify only one door in the primary containment air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.1.3.1	----------NOTE---------- Not required to be met when the 24 inch and 30 inch primary containment purge valves are open for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open. ---------- Verify each 24 inch and 30 inch primary containment purge valve is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.2	----------NOTES---------- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for PCIVs that are open under administrative controls. ---------- Verify each primary containment isolation manual valve and blind flange that is located outside primary containment and not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.3	----------NOTES---------- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for PCIVs that are open under administrative controls. ---------- Verify each primary containment isolation manual valve and blind flange that is located inside primary containment and not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days
SR 3.6.1.3.4	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq$ 3 seconds and $\leq$ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.8	Verify a representative sample of reactor instrument line EFCVs actuate to the isolation position on an actual or simulated instrument line break signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.10	Verify the combined leakage rate for all secondary containment bypass leakage paths is $\leq$ 0.04% primary containment volume/day when pressurized to $\geq P_a$.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Verify leakage rate through each MSIV is $\leq$ 16.0 scfh when tested at $\geq$ 25.0 psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.12	Verify combined leakage rate through hydrostatically tested lines that penetrate the primary containment is within limits.	In accordance with the Primary Containment Leakage Rate Testing Program

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Drywell Air Temperature

LCO 3.6.1.4 Drywell average air temperature shall be ≤ 135°F.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell average air temperature not within limit.	A.1 Restore drywell average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.4.1	Verify drywell average air temperature is within limit.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.1.5.1	Verify each RHR drywell 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.5.2	Verify each spray nozzle is unobstructed.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two or more lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	E.1 Restore all vacuum breakers in two lines to OPERABLE status.	1 hour
F. Required Action and associated Completion Time of Condition A, B or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	----------NOTES---------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. ---------- Verify each vacuum breaker is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.6.2	Perform a functional test of each vacuum breaker.	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.3	Verify the full open setpoint of each vacuum breaker is ≤ 0.5 psid.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more suppression chamber-to-drywell vacuum breakers with two disks not closed.	D.1 Close one open vacuum breaker disk.	2 hours
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.1	----------NOTE---------- Not required to be met for vacuum breakers that are open during Surveillances. ---------- Verify each vacuum breaker is closed.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.2	Perform a functional test of each required vacuum breaker.	In accordance with the Surveillance Frequency Control Program AND Within 12 hours after any discharge of steam to the suppression chamber from the safety/relief valves
SR 3.6.1.7.3	Verify the full open setpoint of each required vacuum breaker is ≤ 0.5 psid.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1.1	Verify suppression pool average temperature is within the applicable limits.	In accordance with the Surveillance Frequency Control Program AND 5 minutes when performing testing that adds heat to the suppression pool

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be ≥ 30 ft 9.75 inches and ≤ 31 ft 1.75 inches.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Suppression pool water level not within limits.	A.1	Restore suppression pool water level to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.2.1	Verify suppression pool water level is within limits.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate ≥ 7100 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the Inservice Testing Program

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Primary Containment Atmosphere Mixing System

LCO 3.6.3.2 Two head area return fans shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One head area return fan inoperable.	A.1 Restore head area return fan to OPERABLE status.	30 days
B. Two head area return fans inoperable.	B.1 Verify by administrative means that the hydrogen and oxygen control function is maintained. AND B.2 Restore one head area return fan to OPERABLE status.	1 hour 7 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.2.1	Operate each head area return fan for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.3.3 Primary Containment Oxygen Concentration

LCO 3.6.3.3 The primary containment oxygen concentration shall be < 3.5 volume percent.

APPLICABILITY: MODE 1 during the time period:

a. From 24 hours after THERMAL POWER is > 15% RTP following startup, to

b. 24 hours prior to reducing THERMAL POWER to < 15% RTP prior to the next scheduled reactor shutdown.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment oxygen concentration not within limit.	A.1 Restore oxygen concentration to within limit.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ 15% RTP.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.3.1	Verify primary containment oxygen concentration is within limits.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.4.1.1	Verify secondary containment vacuum is ≥ 0.25 inch of vacuum water gauge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3	Verify each secondary containment access inner door or each secondary containment access outer door in each access opening is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.4	Verify each standby gas treatment (SGT) subsystem will draw down the secondary containment to ≥ 0.25 inch of vacuum water gauge in ≤ 120 seconds.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.5	Verify each SGT subsystem can maintain ≥ 0.25 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 2240 cfm.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	----------NOTES---------- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative controls. 2. Not required to be met for SCIVs that are open under administrative controls. ---------- Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed, or otherwise secured, and is required to be closed during accident conditions is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.2.2	Verify the isolation time of each power operated, automatic SCIV is within limits.	In accordance with the Inservice Testing Program
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated automatic isolation signal.	In accordance with the Surveillance Frequency Control Program

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each SGT subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.3.4	Verify each SGT filter cooling recirculation valve can be opened and the fan started.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition B not met.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
D. Required Action and associated Completion Time of Condition A not met. OR Both SW subsystems inoperable. OR UHS inoperable for reasons other than Condition A.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify the average water level in the UHS spray ponds is ≥ 432 feet 9 inches mean sea level.	In accordance with the Surveillance Frequency Control Program
SR 3.7.1.2	Verify the average water temperature of each UHS spray pond is ≤ 77°F.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.1.3	----------NOTE---------- Isolation of flow to individual components does not render SW subsystem inoperable. ---------- Verify each SW subsystem manual, power operated, and automatic valve in the flow path servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.1.4	Verify average sediment depth in each UHS spray pond is < 0.5 ft.	In accordance with the Surveillance Frequency Control Program
SR 3.7.1.5	Verify each SW subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.2 High Pressure Core Spray (HPCS) Service Water (SW) System

LCO 3.7.2 The HPCS SW System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. HPCS SW System inoperable.	A.1 Declare HPCS System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.2.1	----------NOTE---------- Isolation of flow to individual components does not render HPCS SW System inoperable. ----------	
	Verify each HPCS SW System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.2	Verify the HPCS SW System actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.3.1	Operate each CREF subsystem for ≥ 10 continuous hours with the heaters operating.	In accordance with the Surveillance Frequency Control Program
SR 3.7.3.2	Perform required CREF filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.3.3	Verify each CREF subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.3.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met during OPDRVs.	D.1 Place OPERABLE control room AC subsystem in operation. OR D.2 Initiate action to suspend OPDRVs.	Immediately Immediately
E. Required Action and associated Completion Time of Condition B not met during OPDRVs.	E.1 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIR5EMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	----------NOTE---------- Not required to be performed until 31 days after any main steam line not isolated and SJAE in operation. ---------- Verify the gross gamma activity rate of the noble gases is ≤ 332 mCi/second after decay of 30 minutes.	In accordance with the Surveillance Frequency Control Program AND Once within 4 hours after a ≥ 50% increase in the nominal steady state fission gas release after factoring out increases due to changes in THERMAL POWER level

3.7 PLANT SYSTEMS

3.7.6 Main Turbine Bypass System

LCO 3.7.6 The Main Turbine Bypass System shall be OPERABLE.

OR

LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for an inoperable Main Turbine Bypass System, as specified in the COLR, are made applicable.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Requirements of the LCO not met.	A.1	Satisfy the requirements of the LCO.	2 hours
B. Required Action and associated Completion Time not met.	B.1	Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify one complete cycle of each main turbine bypass valve.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.2	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program
SR 3.7.6.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.7 Spent Fuel Storage Pool Water Level

LCO 3.7.7 The spent fuel storage pool water level shall be ≥ 22 ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	Verify the spent fuel storage pool water level is ≥ 22 ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	 12 hours
G. Three or more required AC sources inoperable.	G.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met. ---------- Verify each required DG starts from standby conditions and achieves steady state: a. Voltage ≥ 3910 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz for DG-1 and DG-2; and b. Voltage ≥ 3910 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz for DG-3.	 In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.3	----------NOTES---------- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by, and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7. 5. The endurance test of SR 3.8.1.14 may be performed in lieu of the load-run test in SR 3.8.1.3 provided the requirements, except the upper load limits, of SR 3.8.1.3 are met. ---------- Verify each required DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 4000 kW and ≤ 4400 kW for DG-1 and DG-2, and ≥ 2340 kW and ≤ 2600 kW for DG-3.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4	Verify each required day tank contains fuel oil to support greater than or equal to one hour of operation at full load plus 10%.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.5	Check for and remove accumulated water from each required day tank.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.6	Verify each required fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.7	----------NOTE---------- All DG starts may be preceded by an engine prelube period. ---------- Verify each required DG starts from standby condition and achieves: a. For DG-1 and DG-2 in ≤ 15 seconds, voltage ≥ 3910 V and frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains voltage ≥ 3910 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and b. For DG-3, in ≤ 15 seconds, voltage ≥ 3910 V and frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains voltage ≥ 3910 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.8	----------NOTE---------- The automatic transfer function of this Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to re-establish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify automatic and manual transfer of the power supply to safety related buses from the startup offsite circuit to the backup offsite circuit.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.9	----------NOTES---------- 1. Credit may be taken for unplanned events that satisfy this SR. 2. If performed with the DG synchronized with offsite power, it shall be performed at a power factor as close to the power factor of the single largest post-accident load as practicable. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. --- Verify each required DG rejects a load greater than or equal to its associated single largest post-accident load, and following load rejection, the frequency is $\leq$ 66.75 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.10	----------NOTES---------- 1. Credit may be taken for unplanned events that satisfy this SR. 2. If performed with the DG synchronized with offsite power, it shall be performed at a power factor of $\leq$ 0.9 for DG-1 and DG-2, and $\leq$ 0.91 for DG-3. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. --- Verify each required DG does not trip and voltage is maintained $\leq$ 4784 V during and following a load rejection of a load $\geq$ 4400 kW for DG-1 and DG-2 and $\geq$ 2600 kW for DG-3.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, or 3 (not applicable to DG-3). However, portions of the Surveillance may be performed to re-establish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses for Divisions 1 and 2; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 15 seconds for DG-1 and DG-2, and in ≤ 18 seconds for DG-3, 2. energizes auto-connected shutdown loads, 3. maintains steady state voltage ≥ 3910 V and ≤ 4400 V, 4. maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1 or 2 (not applicable to DG-3). However, portions of the Surveillance may be performed to re-establish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each required DG auto-starts from standby condition and: a. For DG-1 and DG-2, in ≤ 15 seconds achieves voltage ≥ 3910 V, and after steady state conditions are reached, maintains voltage ≥ 3910 V and ≤ 4400 V and, for DG-3, in ≤ 15 seconds achieves voltage ≥ 3910 V, and after steady state conditions are reached, maintains voltage ≥ 3910 V and ≤ 4400 V; b. In ≤ 15 seconds, achieves frequency ≥ 58.8 Hz and after steady state conditions are achieved, maintains frequency ≥ 58.8 Hz and ≤ 61.2 Hz; c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are auto-connected to the offsite power system.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.13	----------NOTE---------- Credit may be taken for unplanned events that satisfy this SR. ---------- Verify each required DG's automatic trips are bypassed on an actual or simulated ECCS initiation signal except: a. Engine overspeed; b. Generator differential current; and c. Incomplete starting sequence.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.14	----------NOTES---------- 1. Momentary transients outside the load, excitation current, and power factor ranges do not invalidate this test. 2. Credit may be taken for unplanned events that satisfy this SR. 3. If performed with the DG synchronized with offsite power, it shall be performed at a power factor of ≤ 0.9 for DG-1 and DG-2, and ≤ 0.91 for DG-3. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. ---------- Verify each required DG operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 4650 kW for DG-1 and DG-2, and ≥ 2850 kW for DG-3; and b. For the remaining hours of the test loaded ≥ 4400 kW for DG-1 and DG-2, and ≥ 2600 kW for DG-3.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	----------NOTES---------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 1 hour loaded ≥ 4000 kW for DG-1 and DG-2, and ≥ 2340 kW for DG-3. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. ---------- Verify each required DG starts and achieves: a. For DG-1 and DG-2, in ≤ 15 seconds, voltage ≥ 3910 V and frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains voltage ≥ 3910 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and b. For DG-3, in ≤ 15 seconds, voltage ≥ 3910 V and frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains voltage ≥ 3910 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.16	----------NOTE---------- This Surveillance shall not normally be performed in MODE 1, 2, or 3 (not applicable to DG-3). However, this Surveillance may be performed to re-establish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify each required DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.17	----------NOTE---------- Credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.18	----------NOTE---------- This Surveillance shall not normally be performed in MODE 1, 2, or 3. However, this Surveillance may be performed to re-establish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify interval between each sequenced load block is within ± 10% of design interval for each time delay relay.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.19	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, or 3 (not applicable to DG-3). However, portions of the Surveillance may be performed to re-establish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses for DG-1 and DG-2; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 15 seconds, 2. energizes auto-connected emergency loads, 3. maintains steady state voltage ≥ 3910 V and ≤ 4400 V, 4. maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.20	----------NOTE---------- All DG starts may be preceded by an engine prelube period. ----------	
	Verify, when started simultaneously from standby condition, DG-1 and DG-2 achieves, in ≤ 15 seconds, voltage ≥ 3910 V and frequency ≥ 58.8 Hz, and DG-3 achieves, in ≤ 15 seconds, voltage ≥ 3910 V and frequency ≥ 58.8 Hz.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more DGs with required starting air receiver pressure: 1. For DG-1 and DG-2, < 230 psig and ≥ 150 psig; and 2. For DG-3, < 223 psig and ≥ 150 psig.	E.1 Restore required starting air receiver pressure to within limit.	48 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. OR One or more DGs with stored diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage subsystem contains greater than or equal to a seven day supply of fuel.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.3.2	Verify lube oil inventory is greater than or equal to a seven day supply.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each required DG air start receiver pressure is: a. ≥ 230 psig for DG-1 and DG-2; and b. ≥ 223 psig for DG-3.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify each required battery charger supplies the required load for ≥ 1.5 hours at: a. ≥ 126 V for the 125 V battery chargers; and b. ≥ 252 V for the 250 V battery charger.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	----------NOTES---------- 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.3. 2. This Surveillance shall not be performed in MODE 1, 2, or 3 for the Division 1 and 2 125 V DC batteries. However, credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One or more batteries with a required battery parameter not met for reasons other than Condition A, B, C, D, or E. OR Required Action and associated Completion Time of Condition A, B, C, D, or E not met. OR One or more batteries with one or more battery cell(s) float voltage < 2.07 V and float current > 2 amps.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	----------NOTE---------- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. ---------- Verify each battery float current is ≤ 2 amps.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ 2.07 V.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.5	Verify each battery connected cell voltage is ≥ 2.07 V.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE		FREQUENCY
SR 3.8.6.6	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, or 3 for the Division 1 and 2 125 V DC batteries. However, credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify battery capacity is ≥ 80% of the manufacturer's rating for the 125 V batteries and ≥ 83.4% of the manufacturer's rating for the 250 V battery, when subjected to a performance discharge test or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program AND 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
D. Division 1 250 V DC electrical power distribution subsystem inoperable.	D.1 Declare associated supported feature(s) inoperable.	Immediately
E. One or more Division 3 AC or DC electrical power distribution subsystems inoperable.	E.1 Declare High Pressure Core Spray System inoperable.	Immediately
F. Two or more divisions with inoperable electrical power distribution subsystems that result in a loss of function.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct breaker alignments and indicated power availability to required AC and DC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct breaker alignments and indicated power availability to required AC and DC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.1 Refueling Equipment Interlocks

LCO 3.9.1 The refueling equipment interlocks associated with the refuel position shall be OPERABLE.

APPLICABILITY: During in-vessel fuel movement with equipment associated with the interlocks when the reactor mode switch is in the refuel position.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required refueling equipment interlocks inoperable.	A.1 Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s).	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs: a. All-rods-in, b. Refueling platform position, c. Refueling platform fuel grapple fuel-loaded, d. Refueling platform frame-mounted hoist fuel-loaded, and e. Refueling platform trolley-mounted hoist fuel-loaded.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

LCO 3.9.2 The refuel position one-rod-out interlock shall be OPERABLE.

APPLICABILITY: MODE 5 with the reactor mode switch in the refuel position and any control rod withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refuel position one-rod-out interlock inoperable.	A.1 Suspend control rod withdrawal. AND A.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Verify reactor mode switch locked in refuel position.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.2	----------NOTE---------- Not required to be performed until 1 hour after any control rod is withdrawn. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more control rods not fully inserted.	A.1 Suspend loading fuel assemblies into the core.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify all control rods are fully inserted.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.5 Control Rod OPERABILITY - Refueling

LCO 3.9.5 Each withdrawn control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more withdrawn control rods inoperable.	A.1 Initiate action to fully insert inoperable withdrawn control rods.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	----------NOTE---------- Not required to be performed until 7 days after the control rod is withdrawn. ---------- Insert each withdrawn control rod at least one notch.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.2	Verify each withdrawn control rod scram accumulator pressure is ≥ 940 psig.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.6 Reactor Pressure Vessel (RPV) Water Level - Irradiated Fuel

LCO 3.9.6 RPV water level shall be ≥ 22 ft above the top of the RPV flange.

APPLICABILITY: During movement of irradiated fuel assemblies within the RPV.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify RPV water level is ≥ 22 ft above the top of the RPV flange.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.7 Reactor Pressure Vessel (RPV) Water Level - New Fuel or Control Rods

LCO 3.9.7 RPV water level shall be ≥ 23 ft above the top of irradiated fuel assemblies seated within the RPV.

APPLICABILITY: During movement of new fuel assemblies or handling of control rods within the RPV when irradiated fuel assemblies are seated within the RPV.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RPV water level not within limit.	A.1 Suspend movement of new fuel assemblies and handling of control rods within the RPV.	Immediately

SURVEILLANCE REQUIREMENTS

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately
	AND		
	B.4	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	C.2	Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify one RHR shutdown cooling subsystem is operating.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	C.2	Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.9.1	Verify one RHR shutdown cooling subsystem is operating.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3.2 ----------NOTE---------- Only applicable in MODE 5. ---------- Place the reactor mode switch in the refuel position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.2.1	Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.	In accordance with the Surveillance Frequency Control Program
SR 3.10.2.2	Verify no CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.10.3.2	----------NOTE---------- Not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.d.1 requirements. ---------- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	In accordance with the Surveillance Frequency Control Program
SR 3.10.3.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.4.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.4.2	----------NOTE---------- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.c.1 requirements. ---------- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	In accordance with the Surveillance Frequency Control Program
SR 3.10.4.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.4.4	----------NOTE---------- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.b.1 requirements. ---------- Verify a control rod withdrawal block is inserted.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.10.5.1	Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, are fully inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.5.2	Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, in a five by five array centered on the control rod withdrawn for the removal of the associated CRD, are disarmed.	In accordance with the Surveillance Frequency Control Program
SR 3.10.5.3	Verify a control rod withdrawal block is inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.5.4	Perform SR 3.1.1.1.	According to SR 3.1.1.1
SR 3.10.5.5	Verify no other CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3.1 Initiate action to fully insert all control rods in core cells containing one or more fuel assemblies. OR A.3.2 Initiate action to satisfy the requirements of this LCO.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.6.1	Verify the four fuel assemblies are removed from core cells associated with each control rod or CRD removed.	In accordance with the Surveillance Frequency Control Program
SR 3.10.6.2	Verify all other control rods in core cells containing one or more fuel assemblies are fully inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.6.3	----------NOTE---------- Only required to be met during fuel loading. ---------- Verify fuel assemblies being loaded are in compliance with an approved spiral reload sequence.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.10.8.3	----------NOTE---------- Not required to be met if SR 3.10.8.2 satisfied. ---------- Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.	During control rod movement
SR 3.10.8.4	Verify no other CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program
SR 3.10.8.5	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position AND Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling
SR 3.10.8.6	Verify CRD charging water header pressure ≥ 940 psig.	In accordance with the Surveillance Frequency Control Program

5.5 Programs and Manuals

5.5.14 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Filtration (CREF) System, CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one subsystem of the CREF System, operating at the flow rate required by the VFTP, at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 month assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses for DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

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

5.5 Programs and Manuals

5.5.15 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

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

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

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 238 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-21

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

1.0 INTRODUCTION

By application dated March 17, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15093A178), Energy Northwest, the licensee, requested changes to the technical specifications (TSs) (Appendix A to Renewed Facility Operating License No. NPF-21) for the Columbia Generating Station (Columbia). The licensee requested to revise the Columbia TSs by relocating specific surveillance requirement (SR) frequencies to a licensee-controlled program. The licensee requested to revise the TSs to require that changes to such surveillance frequencies will be made in accordance with Nuclear Energy Institute (NEI) 04-10, Revision 1, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," April 2007 (ADAMS Accession No. ML071360456). The requested change is the adoption of the U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specification Task Force (TSTF) Standard Technical Specifications (STS) Change Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control—RITSTF [Risk-!nformed TSTF] Initiative 5b" (ADAMS Accession No. ML090850642). The *Federal Register* (FR) notice published on July 6, 2009 (74 FR 31996), announced the availability of TSTF-425, Revision 3.

By e-mails dated August 12, 2015 (ADAMS Accession No. ML15224B646), November 3, 2015 (ADAMS Accession No. ML15307A825), March 9, 2016 (ADAMS Accession No. ML16069A359), and May 31, 2016 (ADAMS Accession No. ML16152A737), the NRC sent requests for additional information (RAIs) to the licensee. By letters dated September 17, 2015 (ADAMS Accession No. ML15260A570), October 29, 2015 (ADAMS Accession No. ML15302A492), November 17, 2015 (ADAMS Accession No. ML15321A426), April 7, 2016 (ADAMS Accession No. ML16098A387), and June 22, 2016 (ADAMS Accession No. ML16174A432), the licensee responded to these requests. The letters provided clarifying information that did not expand the scope of the application and did not change the staff's original proposed no significant hazards consideration determination as published in the FR on May 24, 2015 (80 FR 30100).

2.0 REGULATORY EVALUATION

2.1 Description of the Proposed Changes

The licensee proposed to modify the Columbia TSs by relocating specific surveillance frequencies to a licensee-controlled program (i.e., the Surveillance Frequency Control Program (SFCP)) in accordance with NEI 04-10, Revision 1. The licensee stated that the proposed change is consistent with the adoption of NRC-approved TSTF-425, Revision 3. When implemented, TSTF-425, Revision 3, relocates most periodic frequencies of TS surveillances to the SFCP, and provides requirements for the new SFCP in the Administrative Controls section of the TSs. All surveillance frequencies can be relocated except the following:

- Frequencies that reference other approved programs for the specific interval, such as the Inservice Testing Program or the Primary Containment Leakage Rate Testing Program;

- Frequencies that are purely event-driven (e.g., "each time the control rod is withdrawn to the 'full out' position");

- Frequencies that are event-driven, but have a time component for performing the surveillance on a one-time basis once the event occurs (e.g., "within 24 hours after thermal power reaching ≥ 95% RTP"); and

- Frequencies that are related to specific conditions (e.g., battery degradation, age and capacity) or conditions for the performance of a surveillance requirement (e.g., "drywell to suppression chamber differential pressure decrease").

The licensee proposed to add the SFCP to TS Section 5.0, "Administrative Controls," Subsection 5.5.15, "Surveillance Frequency Control Program." The SFCP describes the requirements for the program to control changes to the relocated surveillance frequencies. The TS Bases for each affected surveillance would be revised to state that the frequency is controlled under the SFCP. The proposed changes to the Administrative Controls section of the TSs to incorporate the SFCP include a specific reference to NEI 04-10, Revision 1, as the basis for making any changes to the surveillance frequencies once they are relocated out of the TSs.

In a letter dated September 19, 2007 (ADAMS Accession No. ML072570267), the NRC staff approved Topical Report NEI 04-10, Revision 1, as acceptable for referencing in licensing actions, to the extent specified and under the limitations delineated in NEI 04-10, Revision 1, and in the NRC staff's safety evaluation (SE) for NEI 04-10, Revision 1, dated September 19, 2007 (ADAMS Accession No. ML072570267).

The licensee proposed other changes and deviations from TSTF-425 which are discussed in Section 3.3 of this SE.

2.2 Applicable Commission Policy Statements

In the "Final Policy Statement: Technical Specifications for Nuclear Power Plants," dated July 22, 1993 (58 FR 39132), the NRC addressed the use of Probabilistic Safety Analysis (PSA, currently referred to as Probabilistic Risk Assessment or PRA) in Standard Technical Specifications. In this 1993 publication, the NRC stated:

> The Commission believes that it would be inappropriate at this time to allow requirements which meet one or more of the first three criteria [of Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36] to be deleted from Technical Specifications based solely on probabilistic safety assessment (Criterion 4). However, if the results of PSA indicate that Technical Specifications can be relaxed or removed, a deterministic review will be performed....
>
> The Commission Policy in this regard is consistent with its Policy Statement on "Safety Goals for the Operation of Nuclear Power Plants," 51 FR 30028, published on August 21, 1986. The Policy Statement on Safety Goals states in part, "* * * probabilistic results should also be reasonably balanced and supported through use of deterministic arguments. In this way, judgments can be made * * * about the degree of confidence to be given these [probabilistic] estimates and assumptions. This is a key part of the process for determining the degree of regulatory conservatism that may be warranted for particular decisions. This defense-in-depth approach is expected to continue to ensure the protection of public health and safety."
>
> The Commission will continue to use PSA, consistent with its policy on Safety Goals, as a tool in evaluating specific line-item improvements to Technical Specifications, new requirements, and industry proposals for risk-based Technical Specification changes.

Approximately 2 years later, the NRC provided additional detail concerning the use of PRA in the "Final Policy Statement: Use of Probabilistic Risk Assessment in Nuclear Regulatory Activities," dated August 16, 1995 (60 FR 42622). In this publication, the NRC stated:

> The Commission believes that an overall policy on the use of PRA methods in nuclear regulatory activities should be established so that the many potential applications of PRA can be implemented in a consistent and predictable manner that would promote regulatory stability and efficiency. In addition, the Commission believes that the use of PRA technology in NRC regulatory activities should be increased to the extent supported by the state-of-the-art in PRA methods and data and in a manner that complements the NRC's deterministic approach....
>
> PRA addresses a broad spectrum of initiating events by assessing the event frequency. Mitigating system reliability is then assessed, including the potential for multiple and common cause failures. The treatment therefore goes beyond the single failure requirements in the deterministic approach. The probabilistic

approach to regulation is, therefore, considered an extension and enhancement of traditional regulation by considering risk in a more coherent and complete manner....

Therefore, the Commission believes that an overall policy on the use of PRA in nuclear regulatory activities should be established so that the many potential applications of PRA can be implemented in a consistent and predictable manner that promotes regulatory stability and efficiency. This policy statement sets forth the Commission's intention to encourage the use of PRA and to expand the scope of PRA applications in all nuclear regulatory matters to the extent supported by the state-of-the-art in terms of methods and data....

Therefore, the Commission adopts the following policy statement regarding the expanded NRC use of PRA:

(1) The use of PRA technology should be increased in all regulatory matters to the extent supported by the state-of-the-art in PRA methods and data and in a manner that complements the NRC's deterministic approach and supports the NRC's traditional defense-in-depth philosophy.

(2) PRA and associated analyses (e.g., sensitivity studies, uncertainty analyses, and importance measures) should be used in regulatory matters, where practical within the bounds of the state-of-the-art, to reduce unnecessary conservatism associated with current regulatory requirements, regulatory guides, license commitments, and staff practices. Where appropriate, PRA should be used to support the proposal for additional regulatory requirements in accordance with 10 CFR 50.109 (Backfit Rule). Appropriate procedures for including PRA in the process for changing regulatory requirements should be developed and followed. It is, of course, understood that the intent of this policy is that existing rules and regulations shall be complied with unless these rules and regulations are revised.

(3) PRA evaluations in support of regulatory decisions should be as realistic as practicable and appropriate supporting data should be publicly available for review.

(4) The Commission's safety goals for nuclear power plants and subsidiary numerical objectives are to be used with appropriate consideration of uncertainties in making regulatory judgments on the need for proposing and backfitting new generic requirements on nuclear power plant licensees.

2.3 Applicable Regulations

In 10 CFR, Section 50.36, the NRC established its regulatory requirements related to the content of TSs. Pursuant to 10 CFR 50.36, TSs are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation; (3) SRs; (4) design features; and (5) administrative controls. These categories will remain in the Columbia TSs.

Paragraph 50.36(c)(3) of 10 CFR states, "Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met." The FR notice published on July 6, 2009 (74 FR 31996), which announced the availability of TSTF-425, Revision 3, stated that the addition of the SFCP to the TSs provides the necessary administrative controls to require that surveillance frequencies relocated to the SFCP are conducted at a frequency to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met. The FR notice also states that changes to surveillance frequencies in the SFCP are made using the methodology contained in NEI 04-10, Revision 1, including qualitative considerations, results of risk analyses, sensitivity studies and any bounding analyses, and recommended monitoring of structures, systems, and components (SSCs), and are required to be documented.

Existing regulatory requirements, such as 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants" (i.e., the Maintenance Rule), and 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," require licensee monitoring of surveillance test failures and implementing corrective actions to address such failures. Such failures can result in the licensee increasing the frequency of a surveillance test. In addition, by having the TSs require that changes to the frequencies listed in the SFCP be made in accordance with NEI 04-10, Revision 1, the licensee will be required to monitor the performance of SSCs for which surveillance frequencies are decreased to assure reduced testing does not adversely impact the SSCs.

2.4 Applicable NRC Regulatory Guides

Regulatory Guide (RG) 1.174, Revision 2, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," May 2011 (ADAMS Accession No. ML100910006), describes an acceptable risk-informed approach for assessing the nature and impact of proposed permanent licensing-basis changes by considering engineering issues and applying risk insights. This regulatory guide also provides risk acceptance guidelines for evaluating the results of such evaluations.

RG 1.177, Revision 1, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," May 2011 (ADAMS Accession No. ML100910008), describes an acceptable risk-informed approach specifically for assessing proposed TS changes.

RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," March 2009 (ADAMS Accession No. ML090410014), describes an acceptable approach for determining whether the quality of the PRA, in total or the parts that are used to support an application, is sufficient to provide confidence in the results, such that the PRA can be used in regulatory decisionmaking for light-water reactors (LWRs).

3.0 TECHNICAL EVALUATION

The licensee's adoption of TSTF-425, Revision 3, provides for administrative relocation of applicable surveillance frequencies to the SFCP, and provides for the addition of the SFCP to the Administrative Controls section of TSs. The changes to the Administrative Controls section of the TSs will also require the application of NEI 04-10, Revision 1, for any changes to surveillance frequencies within the SFCP. The licensee's application to implement the changes described in TSTF-425, Revision 3, included documentation regarding the PRA technical adequacy consistent with RG 1.200, Revision 2. NEI 04-10, Revision 1, states that PRA methods are used with plant performance data and other considerations to identify and justify modifications to the surveillance frequencies of equipment at nuclear power plants. This is consistent with guidance provided in RG 1.174, Revision 2, and RG 1.177, Revision 1, in support of changes to Surveillance Test Intervals.

3.1 Review Methodology

RG 1.177, Revision 1, identifies five key safety principles required for risk-informed changes to TSs. Each of these principles is addressed by NEI 04-10, Revision 1.

3.1.1 The Proposed Change Meets Current Regulations

Paragraph 50.36(c)(3) of 10 CFR requires that TSs include surveillances which are "requirements relating to test, calibration, or inspection to assure that necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met." The licensee is required by its TSs to perform surveillance tests, calibration, or inspection on specific safety-related equipment (e.g., reactivity control, power distribution, electrical, and instrumentation) to verify system operability. Surveillance frequencies are based primarily upon deterministic methods such as engineering judgment, operating experience, and manufacturer's recommendations. The licensee's use of NRC-approved methodologies identified in NEI 04-10, Revision 1, provides a way to establish risk-informed surveillance frequencies that complements the deterministic approach and supports the NRC's traditional defense-in-depth philosophy.

The SRs themselves are remaining in the TSs, as required by 10 CFR 50.36(c)(3). This change is analogous with other NRC-approved TS changes in which the SRs are retained in TSs, but the related surveillance frequencies are relocated to licensee-controlled documents, such as surveillances performed in accordance with the Inservice Testing Program and the Primary Containment Leakage Rate Testing Program. Thus, this proposed change complies with 10 CFR 50.36(c)(3) by retaining the requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

The regulatory requirements in 10 CFR 50.65, 10 CFR Part 50, Appendix B, and the monitoring required by NEI 04-10, Revision 1, ensure that surveillance frequencies are sufficient to assure that the requirements of 10 CFR 50.36 are satisfied, and that any performance deficiencies will be identified and appropriate corrective actions taken. The licensee's SFCP ensures that SRs specified in the TSs are performed at intervals sufficient to assure the above regulatory requirements are met. Based on the above, the NRC staff concludes that the proposed change

meets the first key safety principle of RG 1.177, Revision 1, by complying with current regulations.

3.1.2 The Proposed Change Is Consistent With the Defense-in-Depth Philosophy

The defense-in-depth philosophy (i.e., the second key safety principle of RG 1.177, Revision 1), is maintained if:

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation.
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided.
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers). (Because the scope of the proposed methodology is limited to revision of surveillance frequencies, the redundancy, independence, and diversity of plant systems are not impacted.)
- Defenses against potential common cause failures (CCFs) are preserved, and the potential for the introduction of new CCF mechanisms is assessed.
- Independence of barriers is not degraded.
- Defenses against human errors are preserved.
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A, is maintained.

The changes to the Administrative Controls section of the TSs will require the application of NEI 04-10, Revision 1, for any changes to surveillance frequencies within the SFCP. NEI 04-10, Revision 1, uses both the core damage frequency (CDF) and the large early release frequency (LERF) metrics to evaluate the impact of proposed changes to surveillance frequencies. The guidance of RG 1.174, Revision 2, and RG 1.177, Revision 1, for changes to CDF and LERF is achieved by evaluation using a comprehensive risk analysis, which assesses the impact of proposed changes including contributions from human errors and CCFs. Defense-in-depth is also included in the methodology explicitly as a qualitative consideration outside of the risk analysis, as is the potential impact on detection of component degradation that could lead to an increased likelihood of CCFs. Therefore, the NRC staff concludes that both the quantitative risk analysis and the qualitative considerations assure a reasonable balance of defense-in-depth is maintained to ensure protection of public health and safety, satisfying the second key safety principle of RG 1.177, Revision 1.

3.1.3 The Proposed Change Maintains Sufficient Safety Margins

The engineering evaluation that will be conducted by the licensee under the SFCP when frequencies are revised will assess the impact of the proposed frequency change to assure that

sufficient safety margins are maintained. The guidelines used for making that assessment will include ensuring the proposed surveillance test frequency change is not in conflict with approved industry codes and standards or adversely affects any assumptions or inputs to the safety analysis; or, if such inputs are affected, justification is provided to ensure sufficient safety margin will continue to exist.

The design, operation, testing methods, and acceptance criteria for SSCs specified in applicable codes and standards (or alternatives approved for use by the NRC) will continue to be met as described in the plants' licensing bases, including the Updated Final Safety Analysis Report and TS Bases, because these are not affected by changes to the surveillance frequencies. Similarly, there is no impact to safety analysis acceptance criteria as described in the plant licensing basis. Based on the above, the NRC staff concludes that safety margins are maintained by the proposed methodology, and the third key safety principle of RG 1.177, Revision 1, is satisfied.

3.1.4 When Proposed Changes Result in an Increase in CDF or Risk, the Increases Should Be Small and Consistent with the Intent of the Commission's Safety Goal Policy Statement

RG 1.177, Revision 1, provides a framework for evaluating the risk impact of proposed changes to surveillance frequencies which requires identification of the risk contribution from impacted surveillances, determination of the risk impact from the change to the proposed surveillance frequency, and performance of sensitivity and uncertainty evaluations. The changes to the Administrative Controls section of the TSs will require application of NEI 04-10, Revision 1, in the SFCP. NEI 04-10, Revision 1, satisfies the intent of RG 1.177, Revision 1, guidance for evaluation of the change in risk, and for assuring that such changes are small by providing the technical methodology to support risk-informed TSs for control of surveillance frequencies.

3.1.4.1 Quality of the PRA

The quality of the licensee's PRA must be commensurate with the safety significance of the proposed TS change and the role the PRA plays in justifying the change. That is, the greater the change in risk or the greater the uncertainty in that risk from the requested TS change, or both, the more rigor that must go into ensuring the quality of the PRA.

RG 1.200 provides regulatory guidance for assessing the technical adequacy of a PRA. The current revision (i.e., Revision 2) of this RG endorses, with clarifications and qualifications, the use of (1) American Society of Mechanical Engineers (ASME)/American Nuclear Society (ANS) RA-Sa-2009, "Addenda to ASME RA-S-2008 Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications" (i.e., the PRA Standard), (2) NEI 00-02, Revision 1, "PRA Peer Review Process Guidance," May 2006 (ADAMS Accession Nos. ML061510619 and ML063390593), and (3) NEI 05-04, Revision 2, "Process for Performing Internal Events PRA Peer Reviews Using the ASME/ANS PRA Standard," November 2008 (ADAMS Accession No. ML083430462).

The licensee has performed an assessment of the Columbia internal events PRA model, as discussed below, used to support the SFCP using the guidance of RG 1.200 to assure that the PRA models are capable of determining the change in risk due to changes to surveillance

frequencies of SSCs, using plant-specific data and models. Capability Category II of the NRC-endorsed PRA standard is the target capability level for supporting requirements for the internal events PRA for this application. Any identified deficiencies to those requirements are assessed further to determine any impacts to proposed decreases to surveillance frequencies, including the use of sensitivity studies where appropriate, in accordance with NEI 04-10, Revision 1.

A full-scope peer review was performed in 2009 of the internal events, at-power PRA model. The peer review was based on RG 1.200, Revision 2 and ASME/ANS PRA Standard RA-Sa-2009. It was performed by the Boiling Water Reactor (BWR) Owners' Group, and it followed peer review guidance in NEI 05-04, Revision 2. An earlier version of the internal events PRA model had received a full-scope peer review in 2004 against ASME/ANS PRA Standard RA-Sa-2003, as clarified by RG 1.200 (DRAFT), and followed NEI 00-02, Revision A-3, "Probabilistic Risk Assessment (PRA) Peer Review Process Guidance," March 2003 (ADAMS Accession No. ML003728023).

Subsequent to the 2009 full scope peer review, the licensee addressed the facts and observations (F&Os) as well as self-assessment F&Os. In its letter dated September 17, 2015, in response to PRA RAI 1, the licensee explained that self-assessment refers to the process in which PRA self-identified F&Os are entered into an F&O database for inclusion in the next modeling update. The LAR provided those F&Os remaining open in Table 2-1 with a disposition for the TSTF-425 program. In its response to PRA RAI 1, the licensee provided the peer review and self-assessment F&Os for internal events, including internal flooding, PRA standard supporting requirements which had been graded as Capability Category I or "not met," with a resolution of the F&O.

The NRC staff reviewed these internal events and flooding F&Os and their dispositions to determine whether any gaps in the PRA model were identified that could impact the application. The NRC staff assessed these peer review F&Os to ensure any deficiencies in meeting Capability Category II can be addressed for the SFCP per the NRC-approved NEI 04-10, Revision 1 methodology. The NRC staff reviewed these internal events and flooding F&Os and their dispositions to determine whether any gaps in the PRA model were identified that could impact the application. The NRC staff assessed these peer review F&Os to ensure any deficiencies in meeting Capability Category II can be addressed for the SFCP per the NRC-approved NEI 04-10, Revision 1 methodology. The NRC staff found that the F&Os were mainly documentation-related with no impact on the application and the PRA documentation was updated, or that the licensee's F&O disposition was technically adequate for the application. F&O dispositions which required additional information for the review are discussed below.

F&O 2-2 is related to Supporting Requirement DA-C6. The F&O states that estimates based on the surveillance tests and maintenance acts as described in Supporting Requirement DA-C6 and DA-C7 should be performed for significant components whose data are not tracked in the Mitigating Systems Performance Index (MSPI) data. The licensee performed a sensitivity analysis for applicable components by using generic data, and determined the sensitivity analysis represented a bounding analysis. In its letter dated April 7, 2016, in response to PRA RAI 4.1, the licensee addressed the staff's concern that Supporting Requirement DA-C6 and DA-C7 include consideration of plant-specific data and the use of generic data may not be

necessarily provide a bounding assessment. The licensee's response stated that estimates for significant events not tracked in the MSPI data are now based on plant-specific surveillance test and maintenance records. This resolution applied to the following component failure modes: C-W2 (compressors fails to start), C-W4 (compressor fails to run), FN-R3 (fan fails to start), FR-W4 (fan fails to run), AHUS-S3 (air handling unit fails to start), and AHUR-S4 (air handling unit fails to run); furthermore, the model incorporates this resolution. The NRC staff finds that this F&O has been adequately addressed for the application because components not tracked in the MSPI have accounted for plant-specific data and the model has incorporated these changes.

F&O 2-14 is related to Supporting Requirement SY-A4 which states that interviews with plant system engineers or operators have not been documented and cannot be verified by the peer review team. The licensee determined that this F&O could be handled by performing sensitivity analysis to examine whether the application is impacted. In its letter dated October 29, 2015, in response to PRA RAI 3, the licensee addressed the staff's concern on how a sensitivity analysis could be defined to address the lack of documented interviews. The response stated that system reviews with the system engineers were completed for all PRA systems with a focus on confirming that the PRA system analyses correctly reflect the as-built, as-operated plant, as well as to discuss recent operating history and any problems in system operation. The interviews and reviews were documented. The response identified two modeling conservatisms which did not have a risk-significant impact on the PRA results. The NRC staff finds that this F&O has been adequately addressed because the licensee completed the interviews for Supporting Requirement SY-A4 Capability Category II, and have documented the interviews and reviews.

F&O 1-3 is related to Supporting Requirement HR-G3, LE-C7, and IFQU-A6. It pertains to the use of human error probability stress factors from NUREG/CR-1278, "Handbook of Human Reliability Analysis with Emphasis on Nuclear Power Plant Applications," August 1983 (ADAMS Accession No. ML071210299). The F&O stated that in almost all of the post-initiator human error probabilities (HEPs) where optimal stress is assumed, time is a factor with core damage occurring between 30 minutes and an hour[s]. The peer review recommendation was to apply high stress factors per Table 17-1 or NUREG/CR-1278 to HEPs where time pressure is present during an accident situation. In its letter dated April 7, 2016, in response to PRA RAI 1.1 on how optimal and high stress factors were applied for HEPs, the licensee stated that as part of the PRA update performed in 2014, all post-initiator human failure events (HFEs) utilize stress levels recommended by the Human Reliability Analysis (HRA) Calculator. Further, that by utilizing the HRA Calculator, stress levels for the HFEs follow the NUREG/CR-1278 guidelines, including addressing the impact to stress levels from time pressure. In response to a follow-up RAI, in its letter dated June 22, 2016, the licensee clarified that post-initiator HEP stress levels were determined on a case-by-case basis to represent optimal (low), moderate stress, or high stress, as appropriate, including those where time is a factor with core damage occurring between 30 minutes and an hour. The NRC staff concludes the F&O is adequately dispositioned because the licensee followed the HRA Calculator guidance to account for stress factors, and determined the stress factors on a case-by-case basis during the time frame of concern mentioned in the F&O.

Based on the licensee's assessments using the currently applicable PRA standard and revision of RG 1.200, the NRC staff concludes that the level of PRA quality, combined with the evaluation and disposition of F&Os, is sufficient to support the evaluation of changes proposed

to surveillance frequencies within the SFCP, and is consistent with Regulatory Position 2.3.1 of RG 1.177, Revision 1.

3.1.4.2 Scope of the PRA

The changes to the Administrative Controls section of the TSs will require the licensee to evaluate each proposed change to a relocated surveillance frequency using NEI 04-10, Revision 1, to determine its potential impact on risk (i.e., CDF and LERF) from internal events, fires, external events, and shutdown conditions. In cases where a PRA of sufficient scope or quantitative risk models were unavailable, the licensee uses bounding analyses, or other conservative quantitative evaluations. A qualitative screening analysis may be used when the surveillance frequency impact on plant risk is shown to be negligible or zero.

In addition to the at-power internal events PRA model, Columbia has a fire PRA model, a seismic PRA model, and a shutdown PRA model. According to the response to PRA RAI 1, the fire and seismic PRAs have not been reviewed against ASME/ANS PRA Standard RA-Sa-2009. The licensee stated that no PRA models other than the internal events PRA will be used for detailed quantitative analysis. NEI 04-10 Step 11 allows detailed quantitative analysis using the PRA model, by making necessary PRA modifications, if qualitative or bounding analysis is not sufficient for the STI analysis. By letter dated September 17, 2015, in response to PRA RAI 2, the licensee explained that the evaluation of fire risk and other external events risk will qualitatively reflect and consider the current plant configuration and operation, and referenced NEI 04-10 Step 10b, which provides guidance on using qualitative reasoning in conjunction with internal events risk evaluations. The NRC staff finds that the licensee's approach is consistent with NEI 04-10 guidance because the internal events PRA model supports detailed quantitative analysis, and for fire-related and external events, qualitative analysis will be performed based on current plant configuration and operation.

Based on the above, the NRC staff concludes that through the application of NRC-approved NEI 04-10, Revision 1, the licensee's evaluation methodology is sufficient to ensure that the scope of the risk contribution of each surveillance frequency change is properly identified for evaluation and is consistent with Regulatory Position 2.3.2 of RG 1.177, Revision 1.

3.1.4.3 PRA Modeling

The licensee's methodology includes the determination of whether the SSCs affected by a proposed change to a surveillance frequency are modeled in the PRA. Where the SSC is directly or implicitly modeled, a quantitative evaluation of the risk impact may be carried out. The methodology adjusts the failure probability of the impacted SSCs, including any impacted CCF modes, based on the proposed change to the surveillance frequency. Where the SSC is not modeled in the PRA, bounding analyses are performed to characterize the impact of the proposed change to the surveillance frequency. Potential impacts on the risk analyses due to screening criteria and truncation levels are addressed by the requirements for PRA technical adequacy consistent with guidance contained in RG 1.200, and by sensitivity studies identified in NEI 04-10, Revision 1.

Based on the above, the NRC staff concludes that through the application of NRC-approved NEI 04-10, Revision 1, the Columbia PRA modeling is sufficient to ensure an acceptable

evaluation of risk for the proposed changes in surveillance frequency, and is consistent with Regulatory Position 2.3.3 of RG 1.177, Revision 1.

3.1.4.4 Assumptions for Time-Related Failure Contributions

The failure probabilities of SSCs modeled in PRAs may include a standby time-related contribution and a cyclic demand-related contribution. NEI 04–10 criteria adjust the time-related failure contribution of SSCs affected by the proposed change to surveillance frequency. This is consistent with RG 1.177, Revision 1, Regulatory Position 2.3.3 which permits separation of the failure rate contributions into demand and standby for evaluation of SRs. If the available data does not support distinguishing between the time-related failures and demand failures, then the change to surveillance frequency is conservatively assumed to impact the total failure probability of the SSC, including both standby and demand contributions. The SSC failure rate (per unit time) is assumed to be unaffected by the change in test frequency such that the failure probability is assumed to increase linearly with time, and will be confirmed by the required monitoring and feedback implemented after the change in surveillance frequency is implemented. The process requires consideration of qualitative sources of information with regards to potential impacts of test frequency on SSC performance, including industry and plant-specific operating experience, vendor recommendations, industry standards, and code specified test intervals. Thus the process is not reliant upon risk analyses as the sole basis for the proposed changes.

The potential beneficial risk impacts of reduced surveillance frequency, including reduced downtime, lesser potential for restoration errors, reduction of potential for test caused transients, and reduced test-caused wear of equipment, are identified qualitatively, but are conservatively not required to be quantitatively assessed. Thus, through the application of NEI 04–10, the licensee has employed reasonable assumptions with regard to extensions of surveillance test intervals, and is consistent with Regulatory Position 2.3.4 of RG 1.177, Revision 1.

3.1.4.5 Sensitivity and Uncertainty Analyses

By having the TSs require that changes to the frequencies listed in the SFCP be made in accordance with NEI 04-10, Revision 1, the licensee will be required to have sensitivity studies that assess the impact of uncertainties from key assumptions of the PRA, uncertainty in the failure probabilities of the affected SSCs, impact on the frequency of initiating events, and any identified deviations from Capability Category II of the PRA standard. Where the sensitivity analyses identify a potential impact on the proposed change, revised surveillance frequencies are considered, along with any qualitative considerations that may bear on the results of such sensitivity studies. The licensee will also be required to perform monitoring and feedback of SSC performance, once the revised surveillance frequencies are implemented. Based on the above, the NRC staff concludes that through the application of NRC-approved NEI 04-10, Revision 1, the licensee has appropriately considered the possible impact of PRA model uncertainty and sensitivity to key assumptions and model limitations and is consistent with Regulatory Position 2.3.5 of RG 1.177, Revision 1.

3.1.4.6 Acceptance Guidelines

The licensee will be required to quantitatively evaluate the change in total risk (including internal and external events contributions) in terms of CDF and LERF for both the individual risk impact of a proposed change in surveillance frequency and the cumulative impact from all individual changes to surveillance frequencies using NEI 04-10, Revision 1, in accordance with the TS SFCP. Each individual change to surveillance frequency must show a risk impact below 1E-6 per year for change to CDF and below 1E-7 per year for change to LERF. These changes to CDF and LERF are consistent with the acceptance criteria of RG 1.174, Revision 2, for very small changes in risk. Where the RG 1.174, Revision 2, acceptance criteria are not met, the process in NEI 04-10, Revision 1, either considers revised surveillance frequencies, which are consistent with RG 1.174, Revision 2, or the process terminates without permitting the proposed changes. Where quantitative results are unavailable for comparison with the acceptance guidelines, appropriate qualitative analyses are required to demonstrate that the associated risk impact of a proposed change to surveillance frequency is negligible or zero. Otherwise, bounding quantitative analyses are required which demonstrate the risk impact is at least one order of magnitude lower than the RG 1.174, Revision 2, acceptance guidelines for very small changes in risk. In addition to assessing each individual SSC surveillance frequency change, the cumulative impact of all changes must result in a risk impact less than 1E-5 per year for change to CDF, and less than 1E-6 per year for change to LERF, and the total CDF and total LERF must be reasonably shown to be less than 1E-4 per year and 1E-5 per year, respectively. These values are consistent with the acceptance criteria of RG 1.174, Revision 2, as referenced by RG 1.177, Revision 1, for changes to surveillance frequencies.

Consistent with the NRC's SE dated September 19, 2007, for NEI 04-10, Revision 1, the TS SFCP will require the licensee to calculate the total change in risk (i.e., the cumulative risk) by comparing a baseline model that uses failure probabilities based on surveillance frequencies prior to being changed per the SFCP to a revised model that uses failure probabilities based on the changed surveillance frequencies. The NRC staff further notes that the licensee includes a provision to exclude the contribution to cumulative risk from individual changes to surveillance frequencies associated with insignificant risk increases (i.e., less than 5E-8 CDF and 5E-9 LERF) once the baseline PRA models are updated to include the effects of the revised surveillance frequencies.

The quantitative acceptance guidance of RG 1.174, Revision 2, is supplemented by qualitative information to evaluate the proposed changes to surveillance frequencies, including industry and plant-specific operating experience, vendor recommendations, industry standards, the results of sensitivity studies, and SSC performance data and test history. The final acceptability of the proposed change is based on all of these considerations and not solely on the PRA results. Post-implementation performance monitoring and feedback are also required to assure continued reliability of the components. Based on the above, the NRC staff concludes that the licensee's application of NRC-approved NEI 04-10, Revision 1, provides acceptable methods for evaluating the risk increase associated with proposed changes to surveillance frequencies, consistent with Regulatory Position 2.4 of RG 1.177, Revision 1.

Therefore, the NRC staff concludes that the proposed methodology satisfies the fourth key safety principle of RG 1.177, Revision 1, by assuring any increase in risk is small consistent with the intent of the Commission's Safety Goal Policy Statement.

3.1.5 The Impact of the Proposed Change Should Be Monitored Using Performance Measurement Strategies

The licensee's adoption of TSTF-425, Revision 3, requires application of NEI 04-10, Revision 1, in the SFCP. NEI 04-10, Revision 1, requires performance monitoring of SSCs whose surveillance frequencies have been revised as part of a feedback process to assure that the change in test frequency has not resulted in degradation of equipment performance and operational safety. The monitoring and feedback includes consideration of Maintenance Rule monitoring of equipment performance. In the event of SSC performance degradation, the surveillance frequency will be reassessed in accordance with the methodology, in addition to any corrective actions which may be required by the Maintenance Rule. The performance monitoring and feedback specified in NEI 04-10, Revision 1, is sufficient to reasonably assure acceptable SSC performance and is consistent with Regulatory Position 3.2 of RG 1.177, Revision 1. Thus, the NRC staff concludes that the fifth key safety principle of RG 1.177, Revision 1, is satisfied.

3.2 Addition of Surveillance Frequency Control Program to Administrative Controls

The licensee proposed including the SFCP and specific requirements into the Columbia TSs, Section 5.5.15, as follows:

> Surveillance Frequency Control Program
>
> This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure that the associated Limiting Conditions for Operation are met.
>
> a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.
>
> b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.
>
> c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The proposed program is consistent with the model application of TSTF-425 and, therefore, the NRC staff concludes that it is acceptable.

3.3 Deviations from TSTF-425 and Other Changes

The surveillances being revised by the licensee have different surveillance identification numbers as compared to the surveillances found in TSTF-425. These differences have no impact on the technical content of the amendment, and the amendment changes are consistent with the current formatting and content of the Columbia TSs. These differences are administrative in nature and are, therefore, acceptable and consistent with the intent of the NRC-approved TSTF-425.

There are surveillances included in TSTF-425 that are not included in the Columbia TSs. TSTF-425 transfers control of frequencies for existing surveillances to the SFCP, but it does not add, delete, or modify the content of the surveillance actions themselves. Based on this, the amendment, which represents a plant-specific adoption of TSTF-425, only changes frequencies for existing surveillances in the Columbia TSs. Therefore, these differences between the amendment and TSTF-425 are administrative in nature and are, therefore, acceptable and consistent with the intent of the NRC-approved TSTF-425.

This amendment transfers control of frequencies for plant specific surveillances (i.e., surveillances not included in TSTF-425 or surveillances with modified wording as compared to TSTF-425) to the SFCP. Although these changes are not included in the marked-up TS pages for TSTF-425, the TSTF states, in part, that "The proposed change relocates all periodic Surveillance Frequencies from the Technical Specifications and places the Frequencies under licensee control in accordance with a new program," and "All surveillances are relocated except...[4 exclusion criteria for the surveillance frequencies are listed]." These statements denote that TSTF-425 applies to all surveillances, including the Columbia plant specific surveillances, that are periodic and do not meet one of the exclusion criteria. The NRC staff has determined that all of the surveillance frequencies being changed by this amendment are periodic and do not meet the exclusion criteria; therefore, it is acceptable to relocate them to the SFCP. These differences between the amendment and TSTF-425 are consistent with the intent of the NRC-approved TSTF-425.

In accordance with TSTF-425, this amendment relocated surveillance frequencies to the SFCP that were being performed at a given periodicity on a STAGGERED TEST BASIS. Since these specific surveillance frequencies are being relocated, TSTF-425 deletes the STAGGERED TEST BASIS definition from TS. In contrast, the licensee will relocate the same frequencies but retain the definition because the term STAGGERED TEST BASIS is referenced in administrative section 5.5.14, "Control Room Envelope Habitability Program," of the Columbia TSs. Since 5.5.14 is outside the scope of this TSTF, this difference is considered acceptable and consistent with the intent of the NRC-approved TSTF-425.

3.4 Summary and Conclusions

The NRC staff has reviewed the licensee's proposed relocation of specific surveillance frequencies to a licensee-controlled document, and controlling changes to these surveillance frequencies in accordance with a new program, the SFCP, identified in the Administrative Controls of TSs. The SFCP and TSs Section 5.0, Subsection 5.5.15 references NEI 04-10, Revision 1, which provides a risk-informed methodology using plant-specific risk insights and performance data to revise surveillance frequencies within the SFCP. This methodology

supports relocating surveillance frequencies from TSs to a licensee-controlled document, provided those frequencies are changed in accordance with the NEI 04-10, Revision 1, which is specified in the Administrative Controls section of the TSs.

The proposed licensee adoption of TSTF-425, Revision 3, and risk-informed methodology of NRC-approved NEI 04-10, Revision 1, as referenced in the Administrative Controls section of TSs, satisfies the key principles of risk-informed decision making applied to changes to TSs as delineated in RG 1.177 and RG 1.174, in that:

- The proposed change meets current regulations;
- The proposed change is consistent with defense-in-depth philosophy;
- The proposed change maintains sufficient safety margins;
- Increases in risk resulting from the proposed change are small and consistent with the Commission's Safety Goal Policy Statement; and
- The impact of the proposed change is monitored with performance measurement strategies.

Paragraph 50.36(c) of 10 CFR discusses the categories that will be included in TSs. Paragraph 50.36(c)(3) of 10 CFR discusses the specific category of SRs and states, "Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met." Based on the above evaluation, the NRC staff concludes that, with the proposed relocation of surveillance frequencies to a licensee-controlled document and administratively controlled in accordance with the TS SFCP, the licensee continues to meet the requirements in 10 CFR 50.36.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Washington State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding published in the *Federal Register* on May 26, 2015 (80 FR 30100). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

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

Principal Contributors: W. Satterfield, P. Snyder, and D. O'Neal

Date: November 3, 2016

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

L. John Klos, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:
1. Amendment No. 238 to NPF-21
2. Safety Evaluation

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