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

June 11, 2019

Vice President, Operations
Entergy Operations, Inc.
Grand Gulf Nuclear Station
P.O. Box 756
Port Gibson, MS 39150

SUBJECT: GRAND GULF NUCLEAR STATION, UNIT 1 – ISSUANCE OF AMENDMENT NO. 219, RE: ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER TSTF-425, REVISION 3, "RELOCATE SURVEILLANCE FREQUENCIES TO LICENSEE CONTROL – RITSTF INITIATIVE 5B" (EPID L-2018-LLA-0106)

Dear Sir or Madam:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 219 to Renewed Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station, Unit 1. The amendment consists of changes to the technical specifications (TSs) in response to your application dated April 12, 2018, as supplemented by letters dated June 7, 2018, November 30, 2018, and March 6, 2019.

The amendment revises the TSs by relocating specific surveillance frequencies to a licensee-controlled program consistent with the NRC-approved Technical Specifications Task Force (TSTF) Improved Standard Technical Specifications Change Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF [Risk-informed TSTF] Initiative 5b."

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

Sincerely,

April L. Pulvirenti for SPL

Siva P. Lingam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosure:
1. Amendment No. 219 to NPF-29
2. Safety Evaluation

cc: Listserv

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

ENTERGY OPERATIONS, INC.

SYSTEM ENERGY RESOURCES, INC.

COOPERATIVE ENERGY, A MISSISSIPPI ELECTRIC COOPERATIVE

ENTERGY MISSISSIPPI, LLC

DOCKET NO. 50-416

GRAND GULF NUCLEAR STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 219
Renewed License No. NPF-29

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

   A. The application for amendment by Entergy Operations, Inc. (the licensee), dated April 12, 2018, as supplemented by letters dated June 7, 2018, November 30, 2018, and March 6, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   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-29 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 219 are hereby incorporated into this renewed license. Entergy Operations, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:
Changes to the Renewed Facility
Operating License No. NPF-29 and
the Technical Specifications

Date of Issuance: June 11, 2019

ATTACHMENT TO LICENSE AMENDMENT NO. 219

RENEWED FACILITY OPERATING LICENSE NO. NPF-29

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

Replace the following pages of the Renewed Facility Operating License No. NPF-29 and the Appendix A, Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License

Remove	Insert
-4-	-4-

Technical Specifications

REMOVE	INSERT	REMOVE	INSERT
3.1-10	3.1-10	3.3-16	3.3-16
3.1-13	3.1-13	3.3-21	3.3-21
3.1-18	3.1-18	3.3-23	3.3-23
3.1-20	3.1-20	3.3-24	3.3-24
3.1-22	3.1-22	3.3-27	3.3-27
3.1-23	3.1-23	3.3-28	3.3-28
---	3.1-24	3.3-30	3.3-30
3.1-27	3.1-27	3.3-31	3.3-31
3.2-1	3.2-1	3.3-38	3.3-38
3.2-2	3.2-2	3.3-43c	3.3-43c
3.2-3	3.2-3	3.3-46	3.3-46
3.2-4	3.2-4	3.3-52	3.3-52
3.2-5	---	3.3-53	3.3-53
3.2-6	---	3.3-53a	---
3.3-3	3.3-3	3.3-60	3.3-60
3.3-4	3.3-4	3.3-61	3.3-61
3.3-4a	3.3-4a	3.3-65	3.3-65
3.3-5	3.3-5	3.3-69	3.3-69
3.3-5a	3.3-5a	3.3-72	3.3-72
3.3-5b	3.3-5b	3.3-74	3.3-74
3.3-6	3.3-6	3.3-75	---
3.3-6a	3.3-6a	3.3-76	---
3.3-7	3.3-7	3.3-78	3.3-78
3.3-8	3.3-8	3.3-81	3.3-81
3.3-11	3.3-11	3.3-82	3.3-82
3.3-12	3.3-12	3.4-4	3.4-4
3.3-13a	---	3.4-5	---
3.3-13b	---	3.4-6	3.4-6
3.3-15	3.3-15	3.4-7	3.4-7

Technical Specifications (continued)

REMOVE	INSERT	REMOVE	INSERT
3.4-9	3.4-9	3.6-51	3.6-51
3.4-11	3.4-11	3.6-53	3.6-53
3.4-13	3.4-13	3.6-53a	3.6-53a
3.4-18	3.4-18	3.6-57	3.6-57
---	3.4-18a	3.6-60	3.6-60
3.4-20	3.4-20	3.6-61	3.6-61
3.4-23	3.4-23	3.6-62	3.6-62
3.4-25	3.4-25	3.6-63	3.6-63
3.4-27	3.4-27	3.6-67	3.6-67
3.4-28	3.4-28	3.7-2	3.7-2
3.4-29	3.4-29	3.7-3	3.7-3
3.4-36	3.4-36	3.7-4	3.7-4
3.5-4	3.5-4	3.7-5	3.7-5
3.5-5	3.5-5	3.7-7	3.7-7
---	3.5-5a	3.7-8	3.7-8
3.5-6	3.5-6	3.7-10	3.7-10
3.5-6a	3.5-6a	3.7-11	---
3.5-7	3.5-7	3.7-13	3.7-13
3.5-8	3.5-8	3.7-14	3.7-14
3.5-9	3.5-9	3.7-15	3.7-15
3.5-11	3.5-11	---	3.7-16
3.5-12	3.5-12	3.8-5	3.8-5
3.6-7	3.6-7	3.8-6	3.8-6
3.6-8	3.6-8	3.8-7	3.8-7
3.6-14	3.6-14	3.8-8	3.8-8
3.6-16	3.6-16	3.8-9	3.8-9
3.6-17	3.6-17	3.8-10	3.8-10
3.6-18	3.6-18	3.8-11	3.8-11
3.6-19	3.6-19	3.8-12	3.8-12
3.6-21	3.6-21	3.8-13	3.8-13
3.6-23	3.6-23	3.8-13a	3.8-13a
---	3.6-23a	3.8-14	3.8-14
3.6-24	3.6-24	3.8-15	3.8-15
3.6-25	3.6-25	3.8-16	3.8-16
3.6-26	3.6-26	3.8-17	---
3.6-29	3.6-29	3.8-24	3.8-24
3.6-30	3.6-30	3.8-25	---
3.6-32	3.6-32	3.8-27	3.8-27
3.6-34	3.6-34	3.8-28	3.8-28
3.6-35/36	---	3.8-29	3.8-29
3.6-38	3.6-38	3.8-30	3.8-30
3.6-39	3.6-39	3.8-35	3.8-35
3.6-41	3.6-41	3.8-36	3.8-36
3.6-43	3.6-43	3.8-39	3.8-39
3.6-44	3.6-44	3.8-41	3.8-41
3.6-48	3.6-48	3.9-1a	3.9-1a

Technical Specifications (continued)

REMOVE	INSERT	REMOVE	INSERT
3.9-2	3.9-2	3.10-14	3.10-14
3.9-3	3.9-3	3.10-15	3.10-15
3.9-4	3.9-4	3.10-17	3.10-17
3.9-7	3.9-7	3.10-21	3.10-21
3.9-8	3.9-8	3.10-22	3.10-22
3.9-9	3.9-9	3.10-25	3.10-25
3.9-11	3.9-11	5.0-11	5.0-11
---	3.9-11a	5.0-14	5.0-14
3.9-12	3.9-12	5.0-14a	---
3.9-14	3.9-14	5.0-15	5.0-15
3.10-5	3.10-5	5.0-16	5.0-16
3.10-8	3.10-8	5.0-16a	5.0-16a
3.10-11	3.10-11	5.0-16b	5.0-16b
3.10-12	3.10-12		

amended, are fully applicable to the lessors and any successors in interest to those lessors, as long as the renewed license of GGNS Unit 1 remains in effect.

(b) SERI is required to notify the NRC in writing prior to any change in (i) the terms or conditions of any new or existing sale or lease agreements executed as part of the above authorized financial transactions, (ii) the GGNS Unit 1 operating agreement, (iii) the existing property insurance coverage for GGNS Unit 1 that would materially alter the representations and conditions set forth in the Staff's Safety Evaluation Report dated December 19, 1988 attached to Amendment No. 54. In addition, SERI is required to notify the NRC of any action by a lessor or other successor in interest to SERI that may have an effect on the operation of the facility.

C. The renewed license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

Entergy Operations, Inc. is authorized to operate the facility at reactor core power levels not in excess of 4408 megawatts thermal (100 percent power) in accordance with the conditions specified herein.

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 219 are hereby incorporated into this renewed license. Entergy Operations, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

During Cycle 19, GGNS will conduct monitoring of the Oscillation Power Range Monitor (OPRM). During this time, the OPRM Upscale function (Function 2.f of Technical Specification Table 3.3.1.1-1) will be disabled and operated in an "indicate only" mode and technical specification requirements will not apply to this function. During such time, Backup Stability Protection measures will be implemented via GGNS procedures to provide an alternate method to detect and suppress reactor core thermal hydraulic instability oscillations. Once monitoring has been successfully completed, the OPRM Upscale function will be enabled and technical specification requirements will be applied to the function; no further operating with this function in an "indicate only" mode will be conducted.

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	Deleted	
SR 3.1.3.3	----------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 RPCS. ---------- Insert each withdrawn control rod at least one notch.	In accordance with the Surveillance Frequency Control Program
SR 3.1.3.4	Verify each control rod scram time from fully withdrawn to notch position 13 is ≤ 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

(continued)

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 ≥ 950 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 ≥ 950 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

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2	Declare the associated control rod inoperable.	1 hour
D. Required Action and associated Completion Time of Required Action B.1 or C.1 not met.	D.1	----------NOTE---------- Not applicable if all inoperable control rod scram accumulators are associated with fully inserted control rods. ---------- Place the reactor mode switch in the shutdown position.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each control rod scram accumulator pressure is ≥ 1520 psig.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Nine or more OPERABLE control rods not in compliance with BPWS.	B.1	----------NOTE---------- Affected control rods may be bypassed in RACS in accordance with SR 3.3.2.1.9 for insertion only. ---------- Suspend withdrawal of control rods.	Immediately
	AND		
	B.2	Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is ≥ 4,200 gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is ≥ 45°F and ≤ 150°F.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.3	----------NOTE---------- Sodium pentaborate concentration (C), in weight percent, is determined by the performance of SR 3.1.7.5. Boron-10 enrichment (E), in atom percent, is determined by the performance of SR 3.1.7.9. ---------- Verify SLC System satisfies the following equation: (C)(E) ≥ 420.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.4	Verify continuity of explosive charge.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.1.7.5	Verify the percent weight of sodium pentaborate in solution is ≤ 9.5%.	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 to ≥ 45°F
SR 3.1.7.6	Verify each SLC 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 3.1.7.7	Verify each pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1370 psig.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.9	Determine Boron-10 enrichment in atom percent (E).	Once within 24 hours after boron is added to the solution
SR 3.1.7.10	Verify piping between the storage tank and the pump suction is not blocked.	Once within 24 hours after solution temperature is restored to $\geq$ 45°F

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 ≥ 21.8% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any APLHGR not within limits.	A.1 Restore APLHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 21.8% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	Verify all APLHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 21.8% RTP AND In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.2 Minimum Critical Power Ratio (MCPR)

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

APPLICABILITY: THERMAL POWER ≥ 21.8% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any MCPR not within limits	A.1 Restore MCPR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 21.8% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify all MCPRs are greater than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 21.8% RTP AND In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.2.2.2	Determine the MCPR limits.	Once within 72 hours after each completion of SR 3.1.4.1 AND Once within 72 hours after each completion of SR 3.1.4.2 AND Once within 72 hours after each completion of SR 3.1.4.4

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 ≥ 21.8% 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 < 21.8% 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 ≥ 21.8% RTP AND In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

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

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

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.2	----------NOTE---------- Not required to be performed until 12 hours after THERMAL POWER ≥ 21.8% RTP. ----------	
	Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power ≤ 2% RTP while operating at ≥ 21.8% 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.5	Deleted	
SR 3.3.1.1.6	Deleted	
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	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.10	----------NOTES---------- 1. Neutron detectors are excluded. 2. For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. 3. For Function 2.d, APRM recirculation flow transmitters are excluded. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.11	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.12	----------NOTES---------- 1. Neutron detectors are excluded. 2. For IRMs, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.13	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.14	Verify Turbine Stop Valve Closure, Trip Oil Pressure – Low and Turbine Control Valve Fast Closure Trip Oil Pressure – Low Functions are not bypassed when THERMAL POWER is ≥ 35.4% RTP.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.15	----------NOTES---------- 1. Neutron detectors are excluded. 2. For Functions 3, 4, and 5 in Table 3.3.1.1-1, the channel sensors may be excluded. ---------- Verify the RPS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.16	Deleted	
SR 3.3.1.1.17	Perform APRM recirculation flow transmitter calibration.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.18	Deleted	
SR 3.3.1.1.19	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.20	----------NOTE---------- 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.a, 2.b, and 2.c, the APRM/OPRM channels and the 2-Out-Of-4 Voter channels are included in the CHANNEL FUNCTIONAL TEST. 3. For Functions 2.d and 2.f, the APRM/OPRM channels and the 2-Out-Of-4 Voter channels plus the flow input function, excluding the flow transmitters, are included in the CHANNEL FUNCTIONAL TEST. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.1.1-1 (page 1 of 4)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Intermediate Range Monitors					
	a. Neutron Flux – High	2	3	H	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 122/125 divisions of full scale
		5[a]	3	I	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 122/125 divisions of full scale
	b. Inop	2	3	H	SR 3.3.1.1.3 SR 3.3.1.1.13	NA
		5[a]	3	I	SR 3.3.1.1.4 SR 3.3.1.1.13	NA
2.	Average Power Range Monitors					
	a. Neutron Flux - High, Setdown	2	3[b]	H	SR 3.3.1.1.7 SR 3.3.1.1.10[c][d] SR 3.3.1.1.19 SR 3.3.1.1.20	≤ 20% RTP
	b. Fixed Neutron Flux – High	1	3[b]	G	SR 3.3.1.1.2 SR 3.3.1.1.7 SR 3.3.1.1.10[c][d] SR 3.3.1.1.19 SR 3.3.1.1.20	≤ 119.3% RTP

(continued)

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

(b) Each channel provides inputs to both trip systems.

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

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

Table 3.3.1.1-1 (page 2 of 4)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2.	Average Power Range Monitors (continued)					
	c. Inop	1,2	3[b]	H	SR 3.3.1.1.20	NA
	d. Flow Biased Simulated Thermal Power - High	1	3[b]	G	SR 3.3.1.1.2 SR 3.3.1.1.7 SR 3.3.1.1.10[c][d] SR 3.3.1.1.17 SR 3.3.1.1.19 SR 3.3.1.1.20	(e), (f)
	e. 2-Out-Of-4 Voter	1,2	2	H	SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.19 SR 3.3.1.1.20	NA
	f. OPRM Upscale	≥ 16.8% RTP	3[b]	J	SR 3.3.1.1.7 SR 3.3.1.1.10[c][d] SR 3.3.1.1.19 SR 3.3.1.1.20	(g)

(continued)

(b) Each channel provides inputs to both trip systems.

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

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

(e) Two-Loop Operation: 0.64W + 61.8% RTP and ≤ 113% RTP
Single–Loop Operation: 0.58W + 37.4% RTP

(f) With the OPRM Upscale trip function (Function 2.f) inoperable, reset the APRM Flow Biased Simulated Thermal Power – High trip function (Function 2.d) setpoints to the values defined by the COLR to implement the Automated BSP Scram Region in accordance with Action J of this specification.

(g) The setpoint for the OPRM Upscale Confirmation Density Algorithm (CDA) is specified in the COLR.

Table 3.3.1.1-1 (page 3 of 4)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3.	Reactor Vessel Steam Dome Pressure - High	1,2	2	H	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 1079.7 psig
4.	Reactor Vessel Water Level - Low, Level 3	1,2	2	H	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≥ 10.8 inches
5.	Reactor Vessel Water Level - High, Level 8	≥ 21.8% RTP	2	F	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 54.1 inches
6.	Main Steam Isolation Valve - Closure	1	8	G	SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 7% closed
7.	Drywell Pressure - High	1,2	2	H	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 1.43 psig
8.	Scram Discharge Volume Water Level - High					
	a. Transmitter/Trip Unit	1,2	2	H	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 63% of full scale
		5[(a)]	2	I	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 63% of full scale

(continued)

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

Table 3.3.1.1-1 (page 4 of 4)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
8.	Scram Discharge Volume Water Level - High (continued)					
	b. Float Switch	1,2	2	H	SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 65 inches
		5[(a)]	2	I	SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 65 inches
9.	Turbine Stop Valve Closure Trip Oil Pressure - Low	≥ 35.4% RTP	4	E	SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ 37 psig
10.	Turbine Control Valve Fast Closure, Trip Oil Pressure - Low	≥ 35.4% RTP	2	E	SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ 42 psig
11.	Reactor Mode Switch - Shutdown Position	1,2	2	H	SR 3.3.1.1.11 SR 3.3.1.1.13	NA
		5[(a)]	2	I	SR 3.3.1.1.11 SR 3.3.1.1.13	NA
12.	Manual Scram	1,2	2	H	SR 3.3.1.1.4 SR 3.3.1.1.13	NA
		5[(a)]	2	I	SR 3.3.1.1.4 SR 3.3.1.1.13	NA

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

SURVEILLANCE REQUIREMENTS

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

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

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.4	----------NOTE---------- Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. ---------- Verify count rate is: a. ≥ 3.0 cps, or b. ≥ 0.7 cps with a signal to noise ratio ≥ 2:1.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.5	----------NOTE---------- Not required to be performed until 12 hours after IRMs on Range 2 or below. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.6	----------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 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 control rod block capability.

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.1	----------NOTE---------- Not required to be performed until 1 hour after THERMAL POWER is greater than the RWL high power setpoint (HPSP). --- 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 THERMAL POWER is > 35% RTP and less than or equal to the RWL HPSP. --- 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 any control rod is withdrawn at ≤ 10% RTP in MODE 2. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1.4	----------NOTE---------- Not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.5	Calibrate the low power setpoint trip units. The Allowable Value shall be ≥ 10% RTP and ≤ 35% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.6	Verify the RWL high power Function is not bypassed when THERMAL POWER is > 70% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.7	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.8	----------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

(continued)

SURVEILLANCE REQUIREMENTS

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

	SURVEILLANCE	FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.1.2	Deleted	
SR 3.3.3.1.3	----------NOTE---------- Neutron detectors are excluded. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

LCO 3.3.3.2 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Function.

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

SURVEILLANCE REQUIREMENTS

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.2	Verify each required control circuit and transfer switch is capable of performing the intended functions.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel.	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 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
SR 3.3.4.1.2	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. TSV Closure, Trip Oil Pressure - Low: ≥ 37 psig. b. TCV Fast Closure, Trip Oil Pressure - Low: ≥ 42 psig.	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	Verify TSV Closure, Trip Oil Pressure - Low and TCV Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 35.4% RTP.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.6	----------NOTE---------- Breaker interruption time may be assumed from the most recent performance of SR 3.3.4.1.7. ---------- Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.7	Determine RPT breaker interruption time.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One Function with ATWS-RPT trip capability not maintained.	B.1 Restore ATWS-RPT trip capability.	72 hours
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.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2.3	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2.4	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level - Low Low, Level 2: ≥ -43.8 inches; and b. Reactor Vessel Pressure - High: ≤ 1139 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST, including breaker actuation.	In accordance with the Surveillance Frequency Control Program

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, 3.g, and 3.h; and (b) for up to 6 hours for Functions other than 3.c, 3.f, 3.g, and 3.h, 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	Calibrate the trip unit.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.1.5	Perform CHANNEL 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

SURVEILLANCE REQUIREMENTS

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

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

SURVEILLANCE REQUIREMENTS

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

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

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2 and 5; and (b) for up to 6 hours for Functions 1, 3, and 4 provided the associated Function maintains RCIC initiation capability.

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

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.3	Calibrate the trip unit.	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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.6.1.7	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.8	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.9	----------NOTE---------- Channel sensors may be excluded. ----------	
	Verify the ISOLATION SYSTEM RESPONSE TIME for main steam isolation valves is within limits.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.1.2	Declare associated secondary containment isolation valve(s) inoperable.	1 hour
	AND		
	C.2.1	Place the associated standby gas treatment (SGT) subsystem in operation.	1 hour
	OR		
	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 secondary containment isolation capability.

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.3	Calibrate the trip unit.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.7	----------NOTE---------- Radiation detectors may be excluded. ---------- Verify the ISOLATION SYSTEM RESPONSE TIME for air operated secondary containment isolation dampers is within limits.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.6.3-1 to determine which SRs apply for each RHR Containment Spray 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 RHR containment spray initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.3	Calibrate the trip unit.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.6.4-1 to determine which SRs apply for each SPMU 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 SPMU initiation capability.

	SURVEILLANCE	FREQUENCY
SR 3.3.6.4.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4.3	Calibrate the trip unit.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	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 associated Function maintains LLS or relief initiation capability, as applicable.

SURVEILLANCE		FREQUENCY
SR 3.3.6.5.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.5.2	Calibrate the trip unit.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.5.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Relief Function Low: 1103 ± 15 psig Medium: 1113 ± 15 psig High: 1123 ± 15 psig b. LLS Function Low open: 1033 ± 15 psig close: 926 ± 15 psig Medium open: 1073 ± 15 psig close: 936 ± 15 psig High open: 1113 ± 15 psig close: 946 ± 15 psig	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.5.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	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 CR isolation capability is maintained.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

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 6 hours provided the associated Function maintains DG initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.2	Perform CHANNEL 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

ACTIONS (continued)

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 any control rod withdrawn from a core cell containing one or more fuel assemblies.	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	----------NOTE---------- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage Bus A ≤ 132.9 V Bus B ≤ 133.0 V b. Undervoltage Bus A ≥ 115.0 V Bus B ≥ 115.9 V c. Underfrequency (with time delay set to ≤ 4 seconds) Bus A ≥ 57 Hz Bus B ≥ 57 Hz	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2.3	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program

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 jet pump flow mismatch with both recirculation loops in operation is: a. ≤ 10% of rated core flow when operating at < 70% of rated core flow; and b. ≤ 5% of rated core flow when operating at ≥ 70% of rated core flow.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 Flow Control Valves (FCVs)

LCO 3.4.2 A recirculation loop FCV shall be OPERABLE in each operating recirculation loop.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required FCVs inoperable.	A.1 Lock up the FCV.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	Verify each FCV fails "as is" on loss of hydraulic pressure at the hydraulic unit.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.2.2	Verify average rate of each FCV movement is: a. ≤ 11% of stroke per second for opening; and b. ≤ 11% of stroke per second for closing.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	----------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 > 21.8% 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 flow control valve position 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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.4.2	----------NOTE---------- Valve actuation may be excluded. ---------- Verify each required relief function S/RV actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.4.4.3	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each required S/RV relief-mode actuator strokes when manually actuated.	In accordance with the INSERVICE TESTING PROGRAM on a STAGGERED TEST BASIS for each valve solenoid

ACTIONS (continued)

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 LEAKAGE, total LEAKAGE, and unidentified LEAKAGE increase are within limits.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required drywell atmospheric monitoring system inoperable. AND Drywell air cooler condensate flow rate monitoring system inoperable.	E.1 Restore required drywell atmospheric monitoring system to OPERABLE status. OR E.2 Restore drywell air cooler condensate flow rate monitoring system to OPERABLE status.	30 days 30 days
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 hours
G. All required leakage detection systems inoperable.	G.1 Enter LCO 3.0.3	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Perform CHANNEL CHECK of required drywell atmospheric monitoring system.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 ≤ 0.2 μCi/gm.	In accordance with the Surveillance Frequency Control Program

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 the RHR cut in permissive pressure. ---------- Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2	----------NOTE---------- Not required to be performed until 12 hours after reactor steam dome pressure is < the RHR cut in permissive pressure. ---------- Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1 Verify reactor coolant 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
SR 3.4.10.2	Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ----------NOTE---------- Required Action C.2 shall be completed if this Condition is entered. ---------- Requirements of the LCO not met in other than MODES 1, 2, and 3.	C.1 Initiate action to restore parameter(s) to within limits specified in the PTLR. AND C.2 Determine RCS is acceptable for operation.	Immediately Prior to entering MODE 2 or 3

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 limits specified in the PTLR based on the current effective full power year (EFPY), and b. RCS heatup and cooldown rates are within the limits specified in the PTLR.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.11.2	----------NOTE---------- Only required to be met during control rod withdrawal for the purpose of achieving criticality. ---------- Verify RCS pressure and RCS temperature are within the criticality limits specified in the PTLR based on the on the current EFPY.	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 with reactor steam dome pressure ≥ 25 psig during recirculation pump start. ---------- Verify the difference between the bottom head coolant temperature and the reactor pressure vessel (RPV) coolant temperature is within the limits specified in the PTLR.	Once within 15 minutes prior to each startup of a recirculation pump
SR 3.4.11.4	----------NOTE---------- Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump start. ---------- Verify the difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is within the limits specified in the PTLR.	Once within 15 minutes prior to each startup of a recirculation pump

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.11.5	----------NOTE---------- Only required to be performed when tensioning the reactor vessel head bolting studs. ---------- Verify reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.6	----------NOTE---------- Not required to be performed until 30 minutes after RCS temperature ≤ 80°F in MODE 4. ---------- Verify reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.11.7	----------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 within the limits specified in the PTLR.	In accordance with the Surveillance Frequency Control Program

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Reactor Steam Dome Pressure

LCO 3.4.12 The reactor steam dome pressure shall be ≤ 1045 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 ≤ 1045 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, locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	----------NOTE---------- Not required to be met for system vent flow paths opened under administrative control. ---------- 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 supply pressure is ≥ 150 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 total developed head. System / Flow Rate / Total Developed Head LPCS: ≥ 7115 gpm: ≥ 290 psid LPCI: ≥ 7450 gpm: ≥ 125 psid HPCS: ≥ 7115 gpm: ≥ 445 psid	In accordance with the INSERVICE TESTING PROGRAM

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	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 ADS valve relief-mode actuator strokes when manually actuated.	In accordance with the INSERVICE TESTING PROGRAM on a STAGGERED TEST BASIS for each valve solenoid

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.8	----------NOTE---------- ECCS Actuation instrumentation is excluded. ----------	
	Verify the ECCS RESPONSE TIME for HPCS System is within limits.	In accordance with the Surveillance Frequency Control Program

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

3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control

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

AND

One ECCS injection/spray subsystem shall be OPERABLE.

---NOTE---
A low pressure coolant injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned and no otherwise inoperable.

APPLICABILITY: MODES 4 and 5.

ACTIONS

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

(continued)

ACTIONS (continued)

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

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.2.1	Verify DRAIN TIME ≥ 36 hours.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify, for a required low pressure ECCS injection/spray subsystem, the suppression pool water level is ≥ 12 ft 8 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify, for the required High Pressure Core Spray (HPCS) System, the: a. Suppression pool water level is ≥ 12 ft 8 inches; or b. Condensate storage tank water level is ≥ 18 ft.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	Verify, for the required ECCS injection/ spray subsystem, locations susceptible to gas accumulation are sufficently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.5	----------NOTE---------- Not required to be met for system vent flow paths opened under administrative control. ---------- Verify, for the required ECCS injection/spray subsystem, each manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.2.6	Operate the required ECCS injection/spray subsystem through the test return line for ≥ 10 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.8	----------NOTE---------- Vessel injection/spray may be excluded. ----------	
	Verify the required LPCI or LPCS subsystem actuates on a manual initiation signal, or the required HPCS System can be manually operated.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.3.1	Verify the RCIC System locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.2	----------NOTE---------- Not required to be met for system vent flow paths opened under administrative control. ----------	
	Verify each RCIC System 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 RCIC steam supply pressure ≤ 1045 psig and ≥ 945 psig, the RCIC pump can develop a flow rate ≥ 800 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 RCIC steam supply pressure ≤ 165 psig and ≥ 150 psig, the RCIC pump can develop a flow rate ≥ 800 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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

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 of SR 3.6.1.1.1 in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions. --- Perform required primary containment air lock leakage rate testing in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions. The acceptance criteria for air lock testing are: a. Overall air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$. b. For each door, leakage rate is $\leq 0.01\ L_a$ when the gap between the door seals is pressurized to $\geq P_a$.	In accordance with 10 CFR 50, Appendix J, Testing Program
SR 3.6.1.2.2	Verify primary containment air lock seal air flask pressure is ≥ 90 psig.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.2.3	Verify only one door in the primary containment air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.2.4	Verify, from an initial pressure of 90 psig, the primary containment air lock seal pneumatic system pressure does not decay at a rate equivalent to > 2 psig for a period of 48 hours.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.1	----------NOTES---------- 1. Only required to be met in MODES 1, 2, and 3. 2. Not required to be met when the 20 inch primary containment purge valves are open for pressure control, ALARA, or air quality considerations for personnel entry. 3. Not required to be met during Surveillances or special testing on the purge system that requires the valves to be open. 4. 20 inch primary containment purge valves shall not be open with 6 inch primary containment purge or drywell vent and purge supply and exhaust lines open. --- Verify each 20 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, drywell, and steam tunnel 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ----------	
	Perform leakage rate testing for each primary containment purge valve with resilient seals.	In accordance with the Surveillance Frequency Control Program AND In accordance with 10 CFR 50, Appendix J, Testing Program AND --------NOTE-------- Not applicable to valves tested within 92 days prior to any purge valve failing to meet its acceptance criteria ---------- Once within 92 days, test all remaining purge valves, if any purge valve fails to meet its acceptance criteria

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.8	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ----------	
	Verify leakage rate through each main steam line is ≤ 100 scfh when tested at ≥ P_a, and the total leakage rate through all four main steam lines is ≤ 250 scfh when tested at ≥ P_a.	In accordance with 10 CFR 50, Appendix J, Testing Program
SR 3.6.1.3.9	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ----------	
	Verify combined leakage rate of 1 gpm times the total number of PCIVs through hydrostatically tested lines that penetrate the primary containment is not exceeded when these isolation valves are tested at ≥ 1.1 P_a.	In accordance with 10 CFR 50, Appendix J, Testing Program

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Primary Containment Pressure

LCO 3.6.1.4 Primary containment to auxiliary building differential pressure shall be ≥ – 0.1 psid and ≤ 1.0 psid.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Primary containment to auxiliary building differential pressure not within limits.	A.1	Restore primary containment to auxiliary building differential pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.4.1	Verify primary containment to auxiliary building differential pressure is within limits.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1.5 Primary Containment Air Temperature

LCO 3.6.1.5 Primary containment average air temperature shall be ≤ 95°F.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.5.1	Verify primary containment average air temperature is within limit.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.1.6.1	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each LLS valve relief-mode actuator strokes when manually actuated.	In accordance with the INSERVICE TESTING PROGRAM on a STAGGERED TEST BASIS for each valve solenoid
SR 3.6.1.6.2	----------NOTE---------- Valve actuation may be excluded. ---------- Verify the LLS System actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.1	----------NOTE---------- 1. RHR containment spray subsystems may be considered OPERABLE during alignment and operation for decay heat removal when below the RHR cut in permissive pressure in MODE 3 if capable of being manually realigned and not otherwise inoperable. 2. Not required to be met for system vent flow paths opened under administrative control. --- Verify each RHR containment 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 3.6.1.7.2	Verify RHR containment spray subsystem locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.7.3	Verify each RHR pump develops a flow rate of ≥ 7450 gpm on recirculation flow through the associated heat exchanger to the suppression pool.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.7.4	Verify each RHR containment spray subsystem automatic valve in the flow path actuates to its correct position on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.5	Verify each spray nozzle is unobstructed.	At first refueling AND In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1.8 Feedwater Leakage Control System (FWLCS)

LCO 3.6.1.8 Two FWLCS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One FWLCS subsystem inoperable.	A.1 Restore FWLCS subsystems to OPERABLE status.	30 days
B. Two FWLCS subsystems inoperable.	B.1 Restore one FWLCS subsystem to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	Verify RHR jockey pump operates properly.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1.9 Main Steam Isolation Valve (MSIV) Leakage Control System (LCS)

LCO 3.6.1.9 Two MSIV LCS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV LCS subsystem inoperable.	A.1 Restore MSIV LCS subsystem to OPERABLE status.	30 days
B. Two MSIV LCS subsystems inoperable.	B.1 Restore one MSIV LCS subsystem to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.1	Operate each outboard MSIV LCS blower ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.2	Perform a system functional test of each MSIV LCS subsystem.	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 ≥ 18 ft 4-1/12 inches and ≤ 18 ft 9-3/4 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 RHR suppression pool cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.3.3	Verify each RHR pump develops a flow rate ≥ 7450 gpm through the associated heat exchangers to the suppression pool.	In accordance with the INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.2.4.1	Verify upper containment pool water level is ≥ 23 ft 3 inches above the pool bottom.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.4.2	Verify upper containment pool water temperature is ≤ 125°F.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.4.3	Verify each SPMU subsystem manual, power operated, and automatic valve that is not locked, sealed, or otherwise secured in position is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.4.4	----------NOTE---------- Not required to be met when all upper containment pool levels are maintained per SR 3.6.2.4.1 and suppression pool water level is maintained ≥ 18 ft 5 1/12 inches (one inch above LCO 3.6.2.2 Low Water Level). ----------	
	Verify all upper containment pool gates are in the stored position or are otherwise removed from the upper containment pool.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.4.5	----------NOTE---------- Actual makeup to the suppression pool may be excluded. ----------	
	Verify each SPMU subsystem automatic valve actuates to the correct position on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
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	Energize each primary containment and drywell hydrogen igniter division and perform current versus voltage measurements to verify required igniters in service.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.2.2	----------NOTE---------- Not required to be performed until 92 days after discovery of four or more igniters in the division inoperable. ----------	
	Energize each primary containment and drywell hydrogen igniter division and perform current versus voltage measurements to verify required igniters in service.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.2.3	Verify each required igniter in inaccessible areas develops sufficient current draw for a ≥ 1700°F surface temperature.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.2.4	Verify each required igniter in accessible areas develops a surface temperature of ≥ 1700°F.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.3.3.1	Perform a CHANNEL FUNCTIONAL TEST of the isolation valve pressure actuation instrumentation.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.3.2	Operate each drywell purge subsystem for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.3.3	Verify each drywell purge subsystem flow rate is ≥ 1000 cfm.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.3.4	Verify the opening pressure differential of each vacuum breaker and isolation valve is ≤ 1.0 psid.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Secondary containment inoperable during movement of recently irradiated fuel assemblies in the primary or secondary containment.	C.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all auxiliary building and enclosure building equipment hatches and blowout panels are closed and sealed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2	Verify one auxiliary building and enclosure building access door in each access opening is closed, except when the access opening is being used for entry and exit.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.3	Verify the secondary containment can be drawn down to ≥ 0.25 inch of vacuum water gauge in ≤ 180 seconds using one standby gas treatment (SGT) subsystem.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.4	Verify the secondary containment can be maintained ≥ 0.266 inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 4000 cfm.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	----------NOTES---------- 1. Valves, dampers, rupture disks, and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for SCIVs that are open under administrative controls. ---------- Verify each secondary containment isolation manual valve, damper, rupture disk, and blind flange that 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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 15 continuous minutes 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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1.1	Verify bypass leakage is less than or equal to the bypass leakage limit. However, during the first unit startup following drywell bypass leak rate testing performed in accordance with this SR, the acceptance criterion is leakage ≤ 10% of the bypass leakage limit.	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 AND 48 months following a test with bypass leakage greater than the bypass leakage limit AND ----------NOTE--------- SR 3.0.2 is not applicable for extensions > 12 months. ---------- In accordance with the Surveillance Frequency Control Program except next drywell bypass leak rate test performed after October 19, 2008 test shall be performed no later than plant restart after End of Cycle 22 Refueling Outage

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.5.1.2	Visually inspect the exposed accessible interior and exterior surfaces of the drywell.	Once prior to performance of each Type A test required by SR 3.6.1.1.1
SR 3.6.5.1.3	Verify drywell air lock leakage by performing an air lock barrel leakage test at ≥ 3 psid.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.2.1	----------NOTE---------- Only required to be performed upon entry into drywell. ----------	
	Verify only one door in the drywell air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.3.1	----------NOTES---------- 1. Not required to be met when the drywell purge supply or exhaust valves are open for pressure control, ALARA, or air quality considerations for personnel entry. 2. Not required to be met during Surveillances or special testing on the purge system that requires the valves to be open. 3. Drywell purge supply or exhaust valves shall not be open in MODES 1 and 2 with the 6 inch or 20 inch primary containment purge system purge supply and exhaust lines open. ----------	
	Verify each 20 inch drywell purge isolation valve is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.3.2	----------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 drywell isolation valves that are open under administrative controls. ----------	
	Verify each drywell isolation manual valve and blind flange that is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4, if not performed in the previous 92 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.5.3.3	Verify the isolation time of each power operated, automatic drywell isolation valve is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.5.3.4	Verify each automatic drywell isolation valve actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.5.4 Drywell Pressure

LCO 3.6.5.4 Drywell-to-primary containment differential pressure shall be ≥ – 0.25 psid and ≤ 2.0 psid.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Drywell-to-primary containment differential pressure not within limits.	A.1	Restore drywell-to-primary containment differential pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.4.1	Verify drywell-to-primary containment differential pressure is within limits.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.5.5 Drywell Air Temperature

LCO 3.6.5.5 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 3.6.5.5.1	Verify drywell average air temperature is within limit.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.6.1	----------NOTES---------- 1. Not required to be met for vacuum breakers or isolation valves open during surveillances. 2. Not required to be met for vacuum breakers or isolation valves open when performing their intended function. --- Verify each vacuum breaker and its associated isolation valve is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.6.2	Perform a functional test of each vacuum breaker and its associated isolation valve.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.6.3	Verify the opening pressure differential of each vacuum breaker and isolation valve is ≤ 1.0 psid.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One SSW subsystem inoperable.	----------NOTES---------- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources — Operating," for diesel generator made inoperable by SSW. 2. Enter applicable Conditions and Required Actions of LCO 3.4.9, "Residual Heat Removal (RHR) Shutdown Cooling System — Hot Shutdown," for RHR shutdown cooling subsystem made inoperable by SSW. ---------- D.1 Restore SSW subsystem to OPERABLE status.	72 hours
E. Required Action and associated Completion Time of Condition A, C, or D not met.	E.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F Both SSW subsystems inoperable. OR Two UHS cooling towers with one or more cooling tower fans inoperable. OR UHS basin inoperable for reasons other than Condition C.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 Hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify the water level of each UHS basin is ≥ 7.25 ft.	In accordance with the Surveillance Frequency Control Program
SR 3.7.1.2	Operate each SSW cooling tower fan for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.1.3	Verify each required SSW 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 each SSW 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 System (SWS)

LCO 3.7.2 The HPCS SWS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify each required HPCS SWS 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 3.7.2.2	Verify the HPCS SWS actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, or 2.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
D. Two CRFA subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	D.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each CRFA subsystem for ≥ 15 continuous minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.3.2	Perform required CRFA filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.3.3	Verify each CRFA 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

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 REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.5.1	Verify the gross gamma activity rate of the noble gases is ≤ 380 mCi/second after decay of 30 minutes.	Once within 4 hours after a ≥ 50% increase in the nominal steady state fission gas release rate after factoring out increases due to changes in THERMAL POWER level
SR 3.7.5.2	----------NOTE---------- Not required to be performed until 31 days after any SJAE in operation. ----------	
	Verify the gross gamma activity rate of the noble gases is ≤ 380 mCi/second after decay of 30 minutes.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.6 Fuel Pool Water Level

LCO 3.7.6 The fuel pool water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool and upper containment fuel storage pool racks.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify the fuel pool water level is ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.7 Main Turbine Bypass System

LCO 3.7.7 The Main Turbine Bypass System shall be OPERABLE with two Main Turbine Bypass Valves.

OR

The following limits are made applicable:

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

b. LCO 3.2.3, "LINEAR HEAT GENERATION RATE (LHGR)," limits for an inoperable Main Turbine Bypass System, as specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 70% RTP

ACTION

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 < 70% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	Verify one complete cycle of each main turbine bypass valve.	In accordance with the Surveillance Frequency Control Program
SR 3.7.7.2	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Three or more required AC sources inoperable.	H.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 required offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	----------NOTES---------- 1. Performance of SR 3.8.1.21 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. 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 3.8.1.21 must be met. ---------- Verify each DG starts from standby conditions and achieves steady state voltage ≥ 3744 V and ≤ 4576 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	----------NOTES---------- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by, and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.21. ---------- Verify each DG operates for ≥ 60 minutes at a load ≥ 5450 kW and ≤ 5740 kW for DG 11 and DG 12, and ≥ 3300 kW for DG 13.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4	Verify each DG day tank contains ≥ 220 gal of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.5	Check for and remove accumulated water from each day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.6	Verify the fuel oil transfer system 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	Verify the load shedding and sequencing panels respond within design criteria.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.8	----------NOTE---------- This Surveillance shall not be performed in MODE 1 and 2. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify manual transfer of unit power supply from the normal offsite circuit to required alternate offsite circuit.	In accordance with the Surveillance Frequency Control Program
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 ≤ 0.9 for DG 11 and DG 13 and ≤ 0.89 for DG 12. 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 DG rejects a load greater than or equal to its associated single largest post accident load and engine speed is maintained less than nominal plus 75% of the difference between nominal speed and the overspeed setpoint or 15% above nominal, whichever is lower.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	----------NOTE---------- 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 ≤ 0.9 for DG 11 and DG 13 ≤ 0.89 for DG 12. 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 DG does not trip and voltage is maintained ≤ 5000 V during and following a load rejection of a load ≥ 5450 kW and ≤ 5740 kW for DG 11 and DG 12 and ≥ 3300 kW for DG 13.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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 be performed in MODE 1, 2, or 3 (Not Applicable to DG 13). However, 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 ≤ 10 seconds, 2. energizes auto-connected shutdown loads, 3. maintains steady state voltage ≥ 3744 V and ≤ 4576 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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 be performed in MODE 1,or 2 (Not Applicable to DG 13). However, 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 DG auto-starts from standby condition and: a. In ≤ 10 seconds after auto-start and during tests, achieve voltage ≥ 3744 V and frequency ≥ 58.8 Hz; b. Achieves steady state voltage ≥ 3744 V and ≤ 4576 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; c. Operates for ≥ 5 minutes; and d. Emergency loads are auto-connected to the offsite power system.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	----------NOTE---------- Credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG's non-critical automatic trips are bypassed on an actual or simulated ECCS initiation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	----------NOTES---------- 1. Momentary transients outside the load 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 ≤ 0.9 for DG 11 and DG 13 and ≤ 0.89 for DG 12. 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 DG operates for ≥ 24 hours: a. For DG 11 and DG 12 loaded ≥ 5450 kW and ≤ 5740 kW; and b. For DG 13: 1. For ≥ 2 hours loaded ≥ 3630 kW, and 2. For the remaining hours of the test loaded ≥ 3300 kW.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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 or until operating temperatures stabilized loaded ≥ 5450 kW and ≤ 5740 kW for DG 11 and DG 12, and ≥ 3300 kW for DG 13. Momentary transients outside of the load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts and achieves: a. in ≤ 10 seconds, voltage ≥ 3744 V and frequency ≥ 58.8 Hz; and b. steady state voltage ≥ 3744 V and ≤ 4576 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.16	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, or 3 (Not Applicable to DG 13). However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 loads from offsite power.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.18	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify interval between each sequenced load block is within ± 10% of design interval for each automatic load sequencer.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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 be performed in MODE 1, 2, or 3 (Not Applicable to DG 13). However, credit may be taken for unplanned events that satisfy this SR. --- Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal: a. De-energization of 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 ≤ 10 seconds, 2. energizes auto-connected emergency loads, 3. achieves steady state voltage ≥ 3744 V and ≤ 4576 V, 4. achieves 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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, each DG achieves: a. in ≤ 10 seconds, voltage ≥ 3744 V and frequency ≥ 58.8 Hz; and b. steady state voltage ≥ 3744 V and ≤ 4576 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.21	----------NOTE---------- All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. ---------- Verify each DG starts from standby conditions and achieves: a. in ≤ 10 seconds, voltage ≥ 3744 V and frequency ≥ 58.8 Hz; and b. steady state voltage ≥ 3744 V and ≤ 4576 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains: a. ≥ 68,744 gal of fuel for DGs 11 and 12; and b. ≥ 44,616 gal of fuel for DG 13.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify lube oil inventory is: a. ≥ 410 gal for DGs 11 and 12; and b. ≥ 202 gal for DG 13.	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. ≥ 160 psig for DGs 11 and 12; and b. ≥ 175 psig for DG 13.	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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time for Division 1 or 2 DC electrical power subsystem for Condition A, B, or C not met.	D.1	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
E. Division 3 DC electrical power subsystem inoperable for reasons other than Condition A.	E.1	Declare High Pressure Core Spray System inoperable.	Immediately
F. Required Action and associated Completion Time for Division 3 DC electrical power subsystem for Condition A, B or E not met.	F.1 AND F.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 129 V on float charge.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is ≤ 1.5 E-4 ohm for inter-cell connections, ≤ 1.5 E-4 ohm for inter-rack connections, ≤ 1.5 E-4 ohm for inter-tier connections, and ≤ 1.5 E-4 ohm for terminal connections.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.4	Remove visible corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.5	Verify battery connection resistance is ≤ 1.5 E-4 ohm for inter-cell connections, ≤ 1.5 E-4 ohm for inter-rack connections, ≤ 1.5 E-4 ohm for inter-tier connections, and ≤ 1.5 E-4 ohm for terminal connections.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.6	Verify each Division 1 and 2 required battery charger supplies ≥ 400 amps at ≥ 125 V for ≥ 10 hours; and the Division 3 battery charger supplies ≥ 50 amps at ≥ 125 V for ≥ 4 hours.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.7	----------NOTES---------- 1. SR 3.8.4.8 may be performed in lieu of SR 3.8.4.7 once per 60 months. 2. This Surveillance shall not be performed in MODE 1, 2, or 3 (not applicable to Division 3). However, credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.8	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, or 3 (not applicable to Division 3). However, credit may be taken for unplanned events that satisfy this SR. ----------	
	Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test.	In accordance with the Surveillance Frequency Control Program AND 12 months when battery shows degradation, or has reached 85% of the 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 (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells < 60°F. OR One or more batteries with one or more battery cell parameters not within Table 3.8.6-1 Category C limits.	B.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	In accordance with the Surveillance Frequency Control Program AND Once within 72 hours after battery overcharge > 150 V
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 60°F.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING 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 ≥ 1520 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 8 inches 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 8 inches 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 decay heat removal 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 decay heat removal subsystem is operating.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.9.8.2	Verify required RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.9 Residual Heat Removal (RHR) – Low Water Level

LCO 3.9.9 Two decay heat removal subsystems shall be OPERABLE, and one decay heat removal subsystem shall be in operation.

---NOTE---
The required operating decay heat removal subsystem may not be in operation for up to 2 hours per 8 hour period.

APPLICABILITY: MODE 5 with irradiated fuel in the reactor pressure vessel (RPV) and the water level < 22 ft 8 inches above the top of the RPV flange.

ACTIONS

---NOTE---
Separate Condition entry is allowed for each decay heat removal subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required decay heat removal subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable required decay heat removal subsystem.	1 hour AND Once per 24 hours thereafter

(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.9.9.1	Verify one decay heat removal subsystem is operating.	In accordance with the Surveillance Frequency Control Program
SR 3.9.9.2	Verify RHR shutdown cooling subsystem locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3.1 Place the reactor mode switch in the shutdown position. OR A.3.2 ----------NOTE---------- Only applicable in MODE 5. ---------- Place the reactor mode switch in the refuel position.	1 hour 1 hour

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One or more of the above requirements not met with the affected control rod not insertable.	B.1	Suspend withdrawal of the control rod and removal of associated CRD.	Immediately
	AND		
	B.2.1	Initiate action to fully insert all control rods.	Immediately
	OR		
	B.2.2	Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.4.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.4.4	----------NOTE---------- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.b.1 requirements. ----------	
	Verify a control rod withdrawal block is inserted.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.1 Initiate action to fully insert all control rods. OR A.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.5.1	Verify all controls 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 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 (continued)

	SURVEILLANCE	FREQUENCY
SR 3.10.8.2	----------NOTE---------- Not required to be met if SR 3.10.8.3 satisfied. ---------- Perform the MODE 2 applicable SRs for LCO 3.3.2.1, Function 1.b of Table 3.3.2.1-1.	According to the applicable SRs
SR 3.10.8.3	----------NOTE---------- Not required to be met if SR 3.10.8.2 satisfied. ---------- Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.	During control rod movement
SR 3.10.8.4	Verify no other CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.8.5	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position AND Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling
SR 3.10.8.6	Verify CRD charging water header pressure ≥ 1520 psig.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.9.1	Verify suppression pool temperature ≤ 95°F.	In accordance with the Surveillance Frequency Control Program
SR 3.10.9.2	Verify reactor steam dome pressure is < 230 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.10.9.3	Verify level in the upper containment pool and the suppression pool to be within limits of Figure 3.10.9-1.	In accordance with the Surveillance Frequency Control Program
SR 3.10.9.4	Verify level in the fuel storage and transfer canal areas of the upper containment pool are ≥ 23 ft 3 inches.	In accordance with the Surveillance Frequency Control Program

5.5 Programs and Manuals (continued)

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the cyclic and transient occurrences identified on UFSAR Table 3.9-35 to ensure that the reactor vessel is maintained within the design limits.

5.5.6 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.

(continued)

5.5 Programs and Manuals

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

b. A surveillance program to ensure that the quantity of radioactive material contained in any outside temporary tank not including liners for shipping radwaste is ≤ 10 curies, excluding tritium and dissolved or entrained noble gases.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

5.5.9 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks, and acceptability of stored fuel oil at a frequency in accordance with the Surveillance Frequency Control Program, by determining that the fuel oil has:

1. a water and sediment contents within limits, and

2. a kinematic viscosity within limits for ASTM 2D fuel oil;

b. Total particulate concentration of the new fuel is ≤ 2 mg/100 ml when tested in accordance with ASTM D-2274-70 within 7 days after addition of the new fuel to the storage tank; and

c. Total particulate concentration of the fuel oil in the storage tanks is ≤ 2 mg/100 ml when tested in accordance with ASTM D-2274-70 at a frequency in accordance with the Surveillance Frequency Control Program.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program testing frequencies.

(continued)

5.5 Programs and Manual (continued)

5.5.10 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross division checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or

b. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or

c. A required system redundant to support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

(continued)

5.5 Programs and Manuals (continued)

5.5.11 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:

1. A change in the TS incorporated in the license; or

2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the UFSAR.

d. Proposed changes that do not meet the criteria of either Specification 5.5.11.b.1 or Specification 5.5.11.b.2 above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.12 10 CFR 50, Appendix J, Testing Program

This program establishes the leakage rate testing program of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be implemented in accordance with the Safety Evaluation issued by the Office of Nuclear Reactor Regulation dated April 26, 1995 (GNRI-95/00087) as modified by the Safety Evaluation issued for Amendment No. 135 to the Operating License, except that the next Type A test performed after the October 19, 2008 Type A test shall be performed no later than the plant restart after the End of Cycle 22 Refueling Outage. For Type B and Type C local leakage rate testing, this program shall be in accordance with the guidelines contained in NEI 94-01, Revision 3-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated July 2012. Consistent with standard scheduling practices for Technical Specifications required surveillances, intervals for the recommended surveillance frequency for Type A testing may be extended by up to 25 percent of the test interval, not to exceed 15 months. The calculated peak containment internal pressure for the design basis loss of coolant accident, Pa, is 12.1 psig.

(continued)

5.5 Programs and Manuals (continued)

5.5.13 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 Fresh Air (CRFA) 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 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 the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

d. Since the CRE is at a neutral pressure during isolation mode, the CRE will be maintained, including the following:

   1. Plant maintenance activities such as modifications, rework, and preventive maintenance tasks on components that could affect the CRE shall be controlled under fleet, plant and system specific procedures to ensure that the CRE boundary is not degraded by such activities.

   2. Testing of CRFA system sealing areas shall be performed following maintenance activities (rework and preventative) and periodically to ensure that the areas of negative pressures do not leak bypassing emergency filtration system components.

   3. Fire damper inspection procedures that require opening of duct panels and doors shall ensure that upon restoration no leakage path exists.

(continued)

5.5 Programs and Manuals

5.5.13 Control Room Envelope Habitability Program (continued)

4. The remainder of ducting components such as plenum access doors, duct access doors (rectangular and round), flex connections (ventglass, etc), plugs, and patches will be maintained per paragraph b.

5. An assessment of the CRE Boundary will be conducted at a frequency in accordance with the Surveillance Frequency Control Program. The results of assessing items 1 through 4 shall be trended and used as part of the assessment of the CRE boundary as indicated in paragraph c.

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 testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of 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 assessing the CRE boundary as required by paragraphs c and d, respectively.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 219 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-29

ENTERGY OPERATIONS, INC., ET AL.

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

1.0 INTRODUCTION

By application dated April 12, 2018 (Reference 1), as supplemented by letters dated June 7, 2018, November 30, 2018, and March 6, 2019 (References 2, 3 and 4, respectively), Entergy Operations, Inc. (Entergy, the licensee) requested changes to the technical specifications (TSs) for Grand Gulf Nuclear Station, Unit 1 (Grand Gulf or GGNS).

The proposed changes would revise the Grand Gulf TSs to adopt the U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specifications Task Force (TSTF) Standard Technical Specifications Change Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control - RITSTF [Risk-Informed TSTF] Initiative 5b" (Reference 5) for Grand Gulf.

The supplemental letters dated November 30, 2018, and March 6, 2019, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* (FR) on July 31, 2018 (83 FR 36975).

Administrative corrections, such as renumbering of the pages and modifying revision bars, have been made to the TSs, and these corrections have no effect on the safety evaluation.

2.0 REGULATORY EVALUATION

2.1 Description of the Proposed Changes

The licensee proposed to modify the Grand Gulf TSs by relocating specific surveillance frequencies to a licensee-controlled program (i.e., the Surveillance Frequency Control Program (SFCP) 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" (Reference 6). The licensee stated that the proposed change is consistent with

the adoption of NRC-approved TSTF-425, Revision 3. When implemented, TSTF-425 relocates most periodic frequencies of TS surveillances to the SFCP and provides requirements for the new program 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 ≥ [greater than or equal to] 95% RTP [rated thermal power]"); and

- Frequencies that are related to specific conditions (e.g., battery degradation, age and capacity) or conditions for the performance of a surveillance requirement.

The licensee proposed to relocate specific surveillance frequencies from the following TS sections to the SFCP:

3.1 Reactivity Control Systems
3.2 Power Distribution Limits
3.3 Instrumentation
3.4 Reactor Coolant System (RCS)
3.5 Emergency Core Cooling Systems (ECCS), RPV [Reactor Pressure Vessel] Water Inventory Control, and Reactor Core Isolation Cooling (RCIC) System
3.6 Containment Systems
3.7 Plant Systems
3.8 Electrical Power Systems
3.9 Refueling Operations
3.10 Special Operations

The licensee proposed to add the SFCP to Grand Gulf TS Chapter 5.0, "Administrative Controls." Proposed TS 5.5.6, "Surveillance Frequency Control Program," describes the requirements for the SFCP to control changes to the relocated surveillance frequencies to ensure that surveillances are performed at intervals so that limiting conditions for operation (LCOs) are met. The TS Bases for each affected surveillance would be revised to state that the surveillance frequency is controlled under the SFCP. The proposed changes to TS Bases were included in the application for information only. The proposed changes to the Administrative Controls section of the TSs include a specific reference to NEI 04-10, Revision 1, as the basis for making any changes to the surveillance frequencies when they are relocated out of the TSs.

In the letter dated September 19, 2007 (Reference 7), the NRC staff approved Topical Report NEI 04-10, Revision 1, as an acceptable methodology for referencing in licensing actions to the extent specified and under the limitations delineated in NEI 04-10, Revision 1, and the safety evaluation (SE) providing the basis for NRC acceptance of NEI 04-10, Revision 1.

2.2 Applicable Commission Policy Statements

In the "Final Policy Statement: Technical Specifications Improvements for Nuclear Power Reactors," 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 states (at 39135), in part:

> 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(a)(2)(ii)(A) - (C)] to be deleted from Technical Specifications based solely on PSA (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 of 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 details concerning the use of PRA in the "Final Policy Statement: Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities," dated August 16, 1995 (60 FR 42622). In this publication, the NRC states, in part:

> 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 50.36, "Technical specifications," 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) LCOs; (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls. These categories will remain in the Grand Gulf TSs.

Section 50.36(c)(3) of 10 CFR states, "[s]urveillance 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, states 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 LCOs will be met. The FR notice also states that changes to surveillance frequencies in the SFCP would be made using the methodology contained in NEI 04-10, Revision 1.

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 proposed 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 structures, systems, and components (SSCs) for which surveillance frequencies are decreased to assure reduced testing does not adversely impact the SSCs.

2.4 Applicable NRC Regulatory Guides and Review Plans

Regulatory Guide (RG) 1.174, Revision 3, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," dated January 2018 (Reference 8), 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 RG 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," dated May 2011 (Reference 9), 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," dated March 2009 (Reference 10), 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).

NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Chapter 19, Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," dated June 2007 (Reference 11), provides general guidance for evaluating the technical basis for proposed risk-informed changes. Guidance on evaluating PRA technical adequacy is provided in SRP, Chapter 19, Section 19.1, Revision 3, "Determining the Technical Adequacy of Probabilistic Risk Assessment for Risk-Informed License Amendment Requests After Initial Fuel Load," dated September 2012 (Reference 12). More specific guidance related to risk-informed TS changes is provided in SRP, Chapter 16, Section 16.1, Revision 1, "Risk-Informed Decision Making: Technical Specifications," dated March 2007 (Reference 13), which includes changes to surveillance test intervals (STIs) (i.e., surveillance frequencies) as part of risk-informed decisionmaking. Section 19.2 of the SRP references the same criteria as

RG 1.174, Revision 3, and RG 1.177, Revision 1, and states that a risk-informed application should be evaluated to ensure that the proposed changes meet the following key principles:

- The proposed change meets the current regulations, unless it is explicitly related to a requested exemption or rule change;
- The proposed change is consistent with the defense-in-depth philosophy;
- The proposed change maintains sufficient safety margins;
- When proposed changes result in an increase in core damage frequency (CDF) or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement;
- The impact of the proposed change should be monitored using performance measurement strategies.

3.0 TECHNICAL EVALUATION

The licensee's adoption of TSTF-425, Revision 3, would provide for administrative relocation of applicable surveillance frequencies to the SFCP, and would provide for the addition of the SFCP to the Administrative Controls section of TSs. The changes to the Administrative Controls section of the TSs would require the application of NEI 04-10, Revision 1, for any changes to surveillance frequencies within the SFCP. The licensee's application for the changes proposed in TSTF-425, Revision 3, included documentation regarding the PRA technical adequacy consistent with the requirements of 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 3, and RG 1.177, Revision 1, in support of changes to STIs.

3.1 Key Safety Principles

RG 1.777, Revision 1, outlines five key safety principles required for risk-informed changes to TSs. Each of these principles are addressed by NEI 04-10, Revision 1. Section 3.1.1 through Section 3.1.5 of this SE discuss the five principles, including the NRC staff's evaluation of how the licensee's license amendment request (LAR) satisfies each principle.

3.1.1 The Proposed Change Meets Current Regulations

Section 50.36(c)(3) of 10 CFR states that TSs will 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 would remain in the TSs, as required by 10 CFR 50.36(c)(3) but the frequency would be specified by reference to the SFCP. 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 LCOs will be met.

The regulatory requirements in 10 CFR 50.65 and 10 CFR Part 50, Appendix B, and the monitoring that would be required by NEI 04-10, Revision 1 under the proposed TS changes, will 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 proposed SFCP ensures that SRs specified in the TSs are performed at intervals sufficient to assure that 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 CDF and the large early release frequency (LERF) metrics to evaluate the impact of proposed changes to surveillance frequencies. In accordance with RG 1.174, Revision 3, and RG 1.177, Revision 1, changes to the CDF and the LERF are evaluated 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. The NRC staff concludes that both the quantitative risk analysis and the qualitative considerations provide reasonable assurance that 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 plant 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. On this basis, the NRC staff concludes that safety margins are maintained by the proposed methodology and, therefore, 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

The guidance in RG 1.177, Revision 1, provides a framework for evaluating the risk impact of proposed changes to surveillance frequencies that 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 proposed 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, which provides 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 PRA Technical Adequacy

The technical adequacy 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 technical adequacy 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 the following:

1. American Society of Mechanical Engineers/American Nuclear Society (ASME/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" (hereafter, referred to as the ASME/ANS PRA Standard) (Reference 14);

2. NEI 00-02, "Probabilistic Risk Assessment (PRA) Peer Review Process Guidance" (Reference 15); and

3. NEI 05-04, Revision 2, "Process for Performing Internal Events PRA Peer Reviews Using the ASME/ANS PRA Standard" (Reference 16).

The licensee performed an assessment of the PRA models used to support the SFCP using the guidance of RG 1.200, Revision 2, to ensure 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 further assessed 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.

The Grand Gulf PRA model, Revision 1, underwent a peer review in October 1997 by the Boiling Water Reactor Owners Group. Subsequently, a full scope industry peer review of the Grand Gulf PRA model Revision 4 was conducted by the Boiling Water Reactor Owners Group in September 2015. This peer review documented 66 new facts and observations (F&Os) including 39 findings, 26 suggestions and 1 best practice. The full scope peer review findings from 2015 were closed by an independent assessment conducted in August 2017.

The NRC staff observed the independent assessment for Grand Gulf's review and closure of F&Os in August 2017 at Jackson, MS. The closure process followed the guidance outlined in Appendix X to NEI 05-04, NEI 07-12, and NEI 12-13, "Close-out of Facts and Observations (F&Os)" (Reference 17), as accepted by the NRC in a letter dated May 3, 2017 (Reference 18). Appendix X provides guidance to licensees for closing F&Os that were opened during the peer review process. As detailed in NRC's observation report of Grand Gulf's closeout process (Reference 19), the NRC staff could not conclude that the licensee fully adhered to the endorsed guidance in conducting the F&O closure audit. Therefore, for the staff to review the technical adequacy of the Grand Gulf PRA with regard to the SFCP, the LAR was supplemented by F&Os and associated resolutions and conclusions by letter dated June 7, 2018 (Reference 2).

The supplemental information listed 39 finding-level F&Os from the 2015 full-scope industry peer review that were all closed by an independent assessment team in August 2017. The independent assessment team documented the basis for each F&O to validate whether the F&O constituted a PRA upgrade or maintenance update, as well as ensuring that Capability Category II of the ASME/ANS PRA Standard was met for each F&O. The NRC staff confirmed the team's independent assessment that none of the changes made to the Grand Gulf PRA were considered a PRA upgrade or use of a new PRA method.

The NRC staff requested in Request for Additional Information (RAI)-1, to clarify the impact of F&O 4-14 that described the inadequate justification for the dismissal of previous plant failures from inclusion in the PRA. The independent assessment team closed the finding due to additional justification stating that all failures included in the PRA must have occurred during the timeframe for the PRA update (September 2006 to August 2012) and must meet the definition of a PRA functional failure. In response to the RAI-1, the licensee stated that the peer reviewer noted that the timeframe selected was appropriate and correctly used in the model; the data is representative of multiple refueling cycles; and the use of data prior to September 2006 would result in a more substantial overlap with generic data reference used for the update. To ensure the 6-year plant specific data provided in the PRA model continues to adequately represent the uniformity in plant design, operational practice, and experience, a sensitivity study of plant failure data since August 2012 was performed by the licensee to determine if a further PRA update is required (Reference 4). This sensitivity study updated the initiating events unavailability and reliability data to include initiating events unavailability time and function failures over the 6-year period from September 2012 to August 2018 for risk-significant components. An update was not applied to those failure modes and initiating events that did not occur in the 6-year period (September 2012 to August 2018) but existed in the prior data sampling period. The licensee stated that this results in a conservative outcome since incorporating additional exposure time without any new events or demands, without any new functional failures, lowers the initiating events frequency and the failure frequency, respectively. One potential issue identified by the licensee during the unavailability analysis was that the previous PRA analysis used calendar hours and reactor critical hours for the calculation of different test and maintenance unavailabilities. To maintain consistency, the current calculation continues to use the same methodology; however, the licensee noted that this is non-conservative since the use of calendar times results in smaller unavailability. The sensitivity study recommends corrective action to investigate the inconsistency in the unavailability exposure periods. For the objective of the sensitivity study, the NRC staff finds the non-conservative treatment of the unavailability analysis acceptable since the impact of the non-conservatism is offset by the conservatism in the initiating event and reliability analysis. The results of the quantification, incorporating data from prior and updated data, shows an increase of 3.80E-07 CDF and 1.64E-07 LERF, which is within the acceptance guidelines of RG 1.174. Therefore, the NRC staff finds the licensee's response to RAI-1 and sensitivity analysis acceptable.

The NRC staff finds the dispositions of the remaining open F&Os are either related to documentation or do not have a significant impact on the SFCP.

3.1.4.2 Scope of the PRA

The proposed changes to the Administrative Controls section of the TSs would 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 CDF and LERF from internal events, fires, seismic, other external events, and shutdown conditions. In cases where a PRA of

sufficient scope or quantitative risk models are 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 insignificant.

The licensee has at-power internal events and internal flooding PRA models. Under the new proposed TSs and in accordance with NEI 04-10, Revision 1, the licensee will use these PRA models to perform quantitative evaluations to support the development of changes to surveillance frequencies in the SFCP. This is acceptable because the NRC-approved methodology in NEI 04-10, Revision 1, allows for a more refined analysis to be performed supporting changes to surveillance frequencies in the SFCP.

Section 3.3, "GGNS Fire PRA Model," of the LAR states,

> Grand Gulf Nuclear does not currently have a fire PRA model. Therefore, a bounding fire risk evaluation, based on information from the Individual Plant Examination of External Events (IPEEE [ ]) and other available insights for fire risk, will be performed for STI changes in accordance with the guidance of NEI 04-10 (Revision 2).

In response to NRC's RAI-2 dated November 30, 2018 (Reference 3), the licensee clarified that the Grand Gulf fire PRA model was not developed in accordance with NUREG/CR-6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities," and that analysis performed for the IPEEE and the fire PRA do not provide quantitative fire risk information that can be directly compared to the internal events PRA model on a quantitative basis. The licensee further stated that, when assessing fire risk, a bounding assessment is performed considering the qualitative aspects of the risk, including the impact of fire initiators in applicable fire zones when one or more SSCs are unavailable. The licensee also stated that Grand Gulf currently offsets fire risk configurations by implementing risk management actions in accordance with the plant risk assessment for maintenance activities procedure to minimize the likelihood of a fire. Under the proposed SFCP, the licensee will employ the bounding qualitative analysis for surveillance frequency changes that includes the appropriate risk management actions. A more detailed qualitative analysis will be performed if the affected SSC is not modeled or included in the equipment out-of-service monitor.

For other hazard groups for which a PRA model does not exist, a qualitative or bounding analysis, consistent with NEI 04-10, Revision 1, will be performed to provide justification for the acceptability of the proposed test interval change. Grand Gulf does not have a seismic, high winds or external flooding PRA; therefore, a qualitative or bounding approach will be used to assess external event hazard risk for STI changes. Similarly, Grand Gulf does not maintain a shutdown PRA model; however, Grand Gulf does operate under a shutdown risk management program as outlined in Nuclear Management Resources Council (NUMARC 91-06), "Guidelines for Industry Actions to Assess Shutdown Management" (Reference 20), which will be used for shutdown risk evaluation, or an application specific shutdown may be performed for STI changes. Since the licensee's proposed analysis of external hazards is consistent with the methodology in NEI 04-10 for STI change evaluations in the absence of quantifiable PRA models, the NRC finds the licensee's treatment of external hazards acceptable.

Based on the above, the NRC staff concludes that, by application of NEI 04-10, Revision 1, as required by proposed TS 5.5.6, the licensee's evaluation methodology is sufficient to ensure the risk contribution of each surveillance frequency change is properly identified for evaluation, and

is consistent with Regulatory Position 2.3.2, "Scope of the Probabilistic Risk Assessment for Technical Specification Change Evaluations," 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, Revision 2, and by sensitivity studies identified in NEI 04-10, Revision 1.

The NRC staff concludes that, through the application of NEI 04-10, Revision 1, the Grand Gulf PRA modeling is sufficient to ensure that an acceptable evaluation of risk will be performed for the proposed changes in surveillance frequency, and is consistent with Regulatory Position 2.3.3, "Probabilistic Risk Assessment Modeling," 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. In Section 3.4, "Identification of Key Assumptions," of the LAR dated April 12, 2018, the licensee states that the determination of standby failure rates are a key source of uncertainty, and therefore, sensitivity studies will be performed on standby failure rates for STI evaluations. The NEI 04-10, Revision 1, criteria adjust the time-related failure contribution of SSCs affected by the proposed change to a surveillance frequency. This is consistent with RG 1.177, Revision 1, Section 2.3.3, which permits separation of the failure rate contributions into demand and standby for evaluation of SRs. If the available data do 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. This assumption will be confirmed by the required monitoring and feedback implemented after the change in surveillance frequency is implemented. The NEI 04-10, Revision 1, process established by proposed TS 5.5.6 requires consideration of qualitative sources of information with regard 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 NRC staff concludes that the licensee's process is not reliant upon risk analyses as the sole basis for the proposed changes because the licensee has, and will, apply the associated guidance in NEI 04-10, Revision 1.

The potential benefits of a reduced surveillance frequency, including reduced downtime and reduced potential for restoration errors, test-caused transients, and test-caused wear of equipment, are identified qualitatively, but are not quantitatively assessed. The NRC staff concludes that the licensee applied NEI 04-10, Revision 1, to employ reasonable assumptions with regard to extensions of STIs, and the requested changes are consistent with Regulatory

Position 2.3.4, "Assumptions in Completion Time and Surveillance Frequency Evaluations," of RG 1.177, Revision 1.

3.1.4.5 Sensitivity and Uncertainty Analyses

The proposed amended TSs would require that changes to the frequencies listed in the SFCP be made in accordance with NEI 04-10, Revision 1. Therefore, 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 ASME/ANS 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.

In accordance with NEI 04-10, Revision 1, as required by proposed TS 5.5.6, the licensee will also perform monitoring and feedback of SSC performance, once the revised surveillance frequencies are implemented. Therefore, the NRC staff concludes that the licensee will appropriately consider the possible impact of PRA model uncertainty and sensitivity to key assumptions and model limitations. In addition, the staff concludes that the LAR is consistent with Regulatory Position 2.3.5, "Sensitivity and Uncertainty Analyses Relating to Assumptions in Technical Specification Change Evaluations," of RG 1.177, Revision 1, because the licensee has or will apply the associated guidance in NEI 04-10, Revision 1.

3.1.4.6 Acceptance Guidelines

In accordance with NEI 04-10, Revision 1, as required by proposed TS 5.5.6, the licensee will 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. 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 3 (Reference 8), for very small changes in risk. Where the RG 1.174, Revision 3, acceptance criteria are not met, the process in NEI 04-10, Revision 1, either considers revised surveillance frequencies that are consistent with RG 1.174, Revision 3, 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 insignificant. Otherwise, bounding quantitative analyses are required to demonstrate that the risk impact is at least one order of magnitude lower than the RG 1.174, Revision 3, acceptance guidelines for very small changes in risk. In addition, in 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. The total CDF and 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 3, as referenced by RG 1.177, Revision 1 (Reference 9), for changes to surveillance frequencies.

Consistent with the NRC staff's SE dated September 19, 2007, for NEI 04-10, Revision 1 (Reference 7), 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 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 per year for CDF and 5E-9 per year for 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 3 (Reference 8), 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 ensure continued reliability of the components. The licensee's application of 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, "Acceptance Guidelines for Technical Specifications Changes," 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 that 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 proposed TS 5.5.6 requires application of NEI 04-10, Revision 1 (Reference 6), in the SFCP. NEI 04-10, Revision 1, provides for performance monitoring of SSCs whose surveillance frequencies have been revised as part of a feedback process to ensure that the change in test frequency has not resulted in degradation of equipment performance and operational safety. In response to RAI-3 by letter dated November 30, 2018, the licensee stated performance monitoring strategies will be implemented to monitor changes to surveillance frequencies consistent with NEI 04-10 Revision 1, as required by proposed TS 5.5.6, and include:

- Confirmation that no failure mechanisms that are related to the revised STI become important enough to alter the failure rates assumed in the justification of the program changes.

- Performance monitoring ensures adequate component capability exists relative to design-basis conditions, so that the component operating characteristics do not result in reaching a point of insufficient margin before the next scheduled test.

- Component monitoring is expected for high safety significant SSCs as defined by the Grand Gulf Maintenance Rule program.

- Performance will be monitored per the monitoring requirements of the Maintenance Rule program; however, monitoring unique to revised STI may be specified.

- Output of the performance monitoring will be periodically reassessed, and appropriate adjustments made to the surveillance frequencies, if needed.

The monitoring and feedback includes consideration of Maintenance Rule (i.e., 10 CFR 50.65) 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 that may be required by the Maintenance Rule. The performance monitoring and feedback specified in NEI 04-10, Revision 1, and the licensee's RAI-3 response, are sufficient to reasonably assure acceptable SSC performance and are consistent with Regulatory Position 3.2, "Maintenance Rule Control," 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 to include the SFCP and specific requirements for the SFCP in Grand Gulf TS 5.5.6 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 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.

The NRC staff concludes that the proposed TS 5.5.6 will ensure that surveillance frequencies are properly identified, changed in accordance with an NRC-approved methodology, and performed to ensure that LCOs are met. In addition, the NRC staff finds that the proposed SFCP is consistent with the model application of TSTF-425, Revision 3. Therefore, proposed TS 5.5.6 is acceptable.

3.3 Deviations from TSTF-425 and Other Changes

The licensee identified optional changes and variations with the approved TSTF-425, Revision 3 in Section 2.2 of Attachment 1 to the LAR. The NRC staff reviewed the changes and variations and made the following determinations:

1. The definition of STAGGERED TEST BASIS is being retained in the Grand Gulf TSs due to its continued use in several SR Frequencies, which are not the subject of this LAR (e.g., SRs 3.4.4.3, 3.5.1.7, and 3.6.1.6.1). The NRC staff finds that this is an administrative deviation and the NRC staff recognizes that the definition should be retained for consistency with the SRs that use the definition and that remain in the TS. Therefore, the NRC staff finds this deviation is acceptable.

2. The Grand Gulf SR numbering differs from the corresponding TSTF-425 SRs. The NRC staff finds that the proposed SR numbering variations are editorial and non-substantive deviations from TSTF-425, consistent with the existing Grand Gulf TSs, and have no impact on the substantive conclusions in NRC's model SE dated July 6, 2009 (74 FR 31996). Therefore, the NRC staff finds these deviations are acceptable.

3. The licensee stated that NUREG-1434, "Standard Technical Specifications, General Electric BWR/6 Plants" (Reference 21), contains SRs that are not in the Grand Gulf TSs. The NRC staff finds that NUREG-1434 does contain SRs that are not in the Grand Gulf TSs, and therefore, the corresponding surveillances in TSTF-425 are not applicable to Grand Gulf. The NRC staff reviewed the proposed variations and finds that, because the SRs do not apply to Grand Gulf, these deviations from TSTF-425 have no impact on the substantive conclusions in NRC's model SE dated July 6, 2009, and therefore, are acceptable.

4. The licensee stated that plant-specific SRs are not contained in the markups provided in TSTF-425. These SRs were added to the Grand Gulf TSs per Amendment No. 202 (Reference 21), which implements TSTF-523, Revision 2, Generic Letter 2008-01, Managing Gas Accumulation." TSTF-523 allows the option of relocating the applicable SRs to the Surveillance Frequency Control Program (SFCP). The licensee stated that the Grand Gulf plant-specific SRs involve fixed periodic frequencies and do not meet any of the four exclusion criteria of TSTF-425. The NRC staff reviewed the proposed plant-specific SRs listed in the LAR Section 2.2 and concludes that relocation of the plant-specific SR frequencies is consistent with TSTF-425, Revision 3, and the SRs do not meet any of the exclusions identified in Section 1.0, "Introduction," of the model SE dated July 6, 2009. Therefore, the NRC staff finds these variations are acceptable.

5. The licensee proposed to add the SFCP to TS Section 5.5.6 instead of adding the program to the end of TS Section 5.5 as proposed by the NRC's model SE dated July 6, 2009. Additionally, the licensee would remove the word "deleted" currently in TS Section 5.5.6. This change requires formatting that moves applicable portions of the text to the following page as identified in the markup of the TS pages. The licensee considers this to be an administrative deviation from TSTF-425. The NRC staff evaluated this proposed deviation and determined that it is administrative in nature, consistent with the existing Grand Gulf TSs, and does not impact the substantive conclusions of NRC's model SE dated July 6, 2009. Therefore, the NRC staff finds this deviation to be acceptable.

6. The licensee proposed to revise Grand Gulf TSs 5.5.7, 5.5.9, and 5.5.13, which are not identified for relocation to the SFCP in TSTF-425, Revision 3.

   The licensee proposed to revise the first paragraph of TS 5.5.7 as follows (deleted text in ~~strikeout~~ and added text in *italics*):

   > ...required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in Regulatory Guide 1.52, Revision 2, except that testing specified at a frequency of 18 months is required at a frequency ~~of 24 months~~ *in accordance with the Surveillance Frequency Control Program*.

The licensee proposed to revise TS 5.5.9.a as follows (deleted text in ~~strikeout~~ and added text in *italics*):

> Acceptability of new fuel oil for use prior to addition to storage tanks, and acceptability of stored fuel oil ~~every 92 days~~ *at a frequency in accordance with the Surveillance Frequency Control Program*, by determining that the fuel oil has:

The licensee proposed to revise TS 5.5.9.c as follows (deleted text in ~~strikeout~~ and added text in *italics*):

> Total particulate concentration of the fuel oil in the storage tanks is $\leq$ 2 mg/100 ml when tested ~~every 92 days~~ in accordance with ASTM D-2274-70 *at a frequency in accordance with the Surveillance Frequency Control Program.*

The licensee proposed to revise TS 5.5.13.d.5 as follows (deleted text in ~~strikeout~~ and added text in *italics*):

> An assessment of the CRE boundary will be conducted ~~every 18 months~~ *at a frequency in accordance with the Surveillance Frequency Control Program.*

The NRC staff reviewed the licensee's proposed changes associated with these SRs and determined that the SR frequencies do not meet the exclusion criteria of TSTF-425, Revision 3, that the frequencies are fixed periodic frequencies, and that the frequencies are not outside the scope of this TSTF. The NRC staff finds that the relocation of the periodic frequencies associated with these TSs is consistent with the intent of TSTF-425, Revision 3 and is consistent with the existing Grand Gulf TSs. Therefore, the NRC staff concludes that relocation of these plant-specific TS SR frequencies to the SFCP is acceptable.

7. The licensee proposed to combine SR 3.3.1.1.21 and SR 3.3.1.1.22 with SR 3.3.1.1.13 and SR 3.3.1.1.15. The licensee stated that the deletion of SRs 3.3.1.1.21 and 3.3.1.1.22 would prevent maintaining redundant TS SRs that accomplish the same function. SRs 3.3.1.1.13, 3.3.1.1.15, 3.3.1.1.21, and 3.3.1.1.22 have a frequency of 24 months. As a result of the deletion of SR 3.3.1.1.21 and SR 3.3.1.1.22, Function 2.e in Table 3.3.1.1-1 is proposed to be revised to add SR 3.3.1.1.13 and SR 3.3.1.1.15.

   Also, TS Pages 3.3-13a and 3.3-13b are proposed to be removed as a result of the power range neutron monitoring system digital upgrade, which was approved in Amendment No. 188 (Reference 23), which removed TS 3.3.1.3.

   The NRC staff reviewed the proposed changes to combine SR 3.3.1.1.21 with SR 3.3.1.1.13 and SR 3.3.1.1.22 with SR 3.3.1.1.15. SR 3.3.1.1.13 and 3.3.1.1.21 both state, "Perform LOGIC SYSTEM FUNCTIONAL TEST" at a frequency of 24 months. Because the two SRs are redundant, the SR will continue to be met with the proposed deletion of SR 3.3.1.1.21. SR 3.3.1.1.15 and 3.3.1.1.22 both state, "Verify the RPS RESPONSE TIME is within limits" at a frequency of 24 months on a STAGGERED TEST BASIS. Because the two SRs are redundant, the SR will continue to be met with the proposed deletion of SR 3.3.1.1.22. The NRC staff finds that combining SR 3.3.1.1.21

with SR 3.3.1.1.13 and SR 3.3.1.1.22 with SR 3.3.1.1.15 and removing pages 3.3-13a and 3.3-13b does not alter the intent of the current SRs. This change is an administrative deviation from TSTF-425, consistent with the existing Grand Gulf TSs, and has no impact on the substantive conclusions in NRC's model SE dated July 6, 2009 (7 4 FR 32001). Therefore, the NRC staff finds these changes acceptable.

8. Based on the proposed SR reference changes to Function 2.e in Table 3.3.1.1-1, the licensee proposed to move several Functions to different pages and re-annotated footnotes, adding the appropriate footnote(s) at the bottom of the appropriate each page. The NRC staff reviewed these proposed changes and determined that they do not alter any technical content on the associated pages. Therefore, the proposed changes are considered an administrative deviation from TSTF-425, consistent with the existing Grand Gulf TSs, and have no impact on the substantive conclusions in NRC's model SE dated July 6, 2009 (74 FR 32001). Therefore, the NRC staff finds these changes acceptable.

9. Based on the relocation of SR frequencies, the licensee proposed new pages 3.1-24, 3.4-18a, 3.5-5a, 3.6-23a, 3.7-16, and 3.9-11a. There are multiple SRs that moved to the next page requiring further formatting. Also, other formatting errors are proposed to be corrected and are listed in Section 2.2 Item 10 of the LAR.

   The NRC staff reviewed these proposed changes and determined that they are administrative deviations from TSTF-425, consistent with the existing Grand Gulf TSs, and have no impact on the substantive conclusions in NRC's model SE dated July 6, 2009 (74 FR 32001). Therefore, the NRC staff finds these changes acceptable.

10 The licensee proposed the following changes:

- The SR row associated with SR 3.6.1.9.2 is removed because it was deleted in a previous license amendment.

- TS pages 3.2-5, 3.2-6, 3.3-74, 3.3-76, 3.4-5, 3.6-35/3.6-36, 3.8-17, and 3.8-25 are deleted because the information on these pages was deleted in previous license amendments. A Note is added in the footer of the preceding pages, as applicable, to state the next page number. This proposed change eliminates the need to renumber subsequent pages. TS page 3.3-75 is renumbered to page 3.3-74.

The NRC staff reviewed these proposed changes and finds that they continue to meet the TS requirements and are administrative deviations from TSTF-425, consistent with the existing Grand Gulf TSs, and have no impact on the substantive conclusions in NRC's model SE dated July 6, 2009 (74 FR 32001). Therefore, the NRC staff finds these changes acceptable.

11. The licensee proposed to add the logical connector "AND" to SR 3.2.2.2 frequencies to separate them, which were inadvertently omitted in Amendment No. 191 (Reference 24). The NRC staff reviewed the proposed change and determined that the correction restores the intent of the frequencies. As a result, SR 3.2.2.2 is moved to page 3.2-3 and the following page is renumbered to 3.2-4. Also, current pages 3.2-4 through 3.2-6

are deleted since the information on those pages was previously deleted in Amendment No. 188. The NRC staff finds that these proposed formatting changes are administrative deviations from TSTF-425, consistent with the existing Grand Gulf TSs, and have no impact on the substantive conclusions in NRC's model SE dated July 6, 2009 (74 FR 32001). Therefore, the NRC staff finds these changes acceptable.

12 The licensee proposed to capitalize Inservice Testing Program in the Frequency of SR 3.4.4.3, 3.5.1.7, and 3.6.1.6.1. Adoption of TSTF-545 added a definition, INSERVICE TESTING PROGRAM, in TS Section 1.1, which included capitalizing existing uses of the term throughout the TS. The NRC staff reviewed the proposed changes and determined that they are administrative deviations from TSTF-425, consistent with the existing Grand Gulf TSs, and have no impact on the substantive conclusions in NRC's model SE dated July 6, 2009 (74 FR 32001). Therefore, the NRC staff finds the changes acceptable.

13. The licensee proposed to revise TS 3.7.7, "Main Turbine Bypass System," to be consistent with the format of NUREG-1434, Revision 4, TS 3.7.6, "Main Turbine Bypass System." The NRC staff reviewed the proposed changes and determined that the format change does not alter the intent of the TS and is an administrative deviation from TSTF-425, consistent with the existing Grand Gulf TSs, and has no impact on the NRC's model SE dated July 6, 2009 (74 FR 32001). Therefore, the NRC staff finds the change acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Mississippi State official was notified of the proposed issuance of the amendment on April 1, 2019. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. 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 published in the *Federal Register* on July 31, 2018 (83 FR 36975), and there has been no public comment on such finding. 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.

7.0 REFERENCES

1. Larson, E. A, Entergy Operations, Inc. letter to U.S. Nuclear Regulatory Commission, "Application for Technical Specification Change Regarding Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program (TSTF-425)," dated April 12, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18102B445).

2. Larson, E. A, Entergy Operations, Inc. letter to U.S. Nuclear Regulatory Commission, "Supplement to Application for Technical Specification Change Regarding Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program (TSTF-425)," dated June 7, 2018 (ADAMS Accession No. ML18158A514).

3. Larson, E. A, Entergy Operations, Inc. letter to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information for Technical Specification Change Regarding Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program (TSTF-425)" dated November 30, 2018 (ADAMS Accession No. ML18337A136).

4. Larson, E. A, Entergy Operations, Inc. letter to U.S. Nuclear Regulatory Commission, "Internal Events Probabilistic Risk Assessment (PRA) Sensitivity Study Regarding Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program (TSTF-425)," dated March 6, 2019 (ADAMS Accession No. ML19066A088).

5. Technical Specifications Task Force, letter and enclosure to U.S. Nuclear Regulatory Commission, "Transmittal of TSTF-425, Revision 3, 'Relocate Surveillance Frequencies to Licensee Control - RITSTF Initiative 5b,'" dated March 18, 2009 (ADAMS Accession No. ML090850642).

6. Nuclear Energy Institute, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," NEI 04-10, Revision 1, dated April 2007 (ADAMS Accession No. ML071360456).

7. Nieh, H. K., U.S. Nuclear Regulatory Commission, letter to Biff Bradley, Nuclear energy Institute, "Final Safety Evaluation for Nuclear Energy Institute (NEI) Topical Report (TR) 04-10, Revision 1, 'Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies,' (TAC No. MD6111)," dated September 19, 2007 (ADAMS Accession No. ML072570267).

8. U.S. Nuclear Regulatory Commission, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Regulatory Guide 1.174, Revision 3, dated January 2018 (ADAMS Accession No. ML17317A256).

9. U.S. Nuclear Regulatory Commission, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," Regulatory Guide 1.177, Revision 1, dated May 2011 (ADAMS Accession No. ML100910008).

10. U.S. Nuclear Regulatory Commission "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," Regulatory Guide 1.200, Revision 2, dated March 2009 (ADAMS Accession No. ML090410014).

11. U.S. Nuclear Regulatory Commission, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," NUREG-0800, Section 19.2, dated June 2007 (ADAMS Accession No. ML071700658).

12. U.S. Nuclear Regulatory Commission, "Determining the Technical Adequacy of Probabilistic Risk Assessment for Risk-Informed License Amendment Requests After Initial Fuel Load," NUREG-0800, Section 19.1, Revision 3, dated September 2012 (ADAMS Accession No. ML12193A107).

13. U.S. Nuclear Regulatory Commission, "Risk-Informed Decision Making: Technical Specifications," NUREG-0800, Section 16.1, Revision 1, dated March 2007 (ADAMS Accession No. ML070380228).

14. American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) PRA Standard ASME/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," February 2009, New York, NY.

15. Nuclear Energy Institute, "Probabilistic Risk Assessment (PRA) Peer Review Process Guidance," NEI 00-02, Revision 1, dated May 2006, and NEI 00-02 Appendix D, "Self Assessment Process for Addressing ASME PRA Standard RA-Sb-2005, as endorsed by NRC Regulatory Guide 1.200," dated October 2006 (ADAMS Accession Nos. ML061510619 and ML063390593, respectively).

16. Nuclear Energy Institute, "Process for Performing Internal Events PRA Peer Reviews Using the ASME/ANS PRA Standard," NEI 05-04, Revision 2, dated November 2008 (ADAMS Accession No. ML083430462).

17. Nuclear Energy Institute, letter and enclosure to U.S. Nuclear Regulatory Commission, "Final Revision of Appendix X to NEI 05-04/07-12/12-16, Close-Out of Facts and Observations (F&Os)," dated February 21, 2017 (ADAMS Accession No. ML17086A431).

18. Giitter, J., and Ross-Lee, M. J., U.S. Nuclear Regulatory Commission, letter to Mr. Greg Krueger, Nuclear Energy Institute, "U.S. Nuclear Regulatory Commission Acceptance on Nuclear Energy Institute Appendix X to Guidance 05-04, 07-12, and 12-13, Close-Out of Facts and Observations (F&Os)," dated May 3, 2017, (ADAMS Accession No. ML17079A427).

19. Rosenberg, S. L., U.S. Nuclear Regulatory Commission, memorandum to Joseph G. Giitter, U.S. Nuclear Regulatory Commission, "Nuclear Regulatory Commission Report on Observations of Implementation of the Industry Independent Assessment Team Close-Out of Facts and Observations After Appendix X Issued," dated December 1, 2017 (not publicly available).

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21. U.S. Nuclear Regulatory Commission, "Standard Technical Specifications, General Electric BWR/6 Plants," NUREG-1434, Revision 4, Volume 1, Specifications and Volume 2, Bases (ADAMS Accession Nos. ML12102A195 and ML12102A196, respectively).

22. Wang, A. B., U.S. Nuclear Regulatory Commission, letter to Entergy Operations, Inc., "Grand Gulf Nuclear Station, Unit 1 – Issuance of Amendment Re: Adoption of Technical Specifications Task Force Standard Technical Specifications Change Traveler TSTF-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation (TAC No. MF4976)," dated May 12, 2015 (ADAMS Accession No. ML15104A623).

23. Wang, A. B., U.S. Nuclear Regulatory Commission, letter to Entergy Operations, Inc., "Grand Gulf Nuclear Station, Unit 1 – Issuance of Amendment Re: Power Range Neutron Monitoring System Replacement (TAC No. ME2531), dated March 28, 2012 (ADAMS Accession No. ML120400319).

24. Wang, A. B., U.S. Nuclear Regulatory Commission, letter to Entergy Operations, Inc., "Grand Gulf Nuclear Station, Unit 1 – Issuance of Amendment Re: Extended Power Uprate (TAC No. ME4679)," dated July 18, 2012 (ADAMS Accession No. ML121210020).

Principal Contributors: J. Patel, NRR
T. Sweat, NRR

Date: June 11, 2019

SUBJECT: GRAND GULF NUCLEAR STATION, UNIT 1 – ISSUANCE OF AMENDMENT NO. 219, RE: ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER TSTF-425, REVISION 3, "RELOCATE SURVEILLANCE FREQUENCIES TO LICENSEE CONTROL – RITSTF INITIATIVE 5B" (EPID L-2018-LLA-0106) DATED JUNE 11, 2019

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ADAMS Accession No: ML19094A799 *by memo ** via email

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DATE	06/10/19	6/11/19	

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