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

April 29, 2019

Vice President, Operations
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION, UNIT 1 – ISSUANCE OF AMENDMENT RE: ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER TSTF-425, REVISION 3 (EPID L-2018-LLA-0056)

Dear Sir or Madam:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 196 to Renewed Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The amendment consists of changes to the technical specifications in response to your application dated February 28, 2018, as supplemented by letters dated July 10, July 24, December 17, and December 20, 2018.

The amendment revises the TSs by relocating specific surveillance frequencies to a licensee-controlled program consistent with the NRC-approved Technical Specification 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 enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/ FOR MWO

Margaret W. O'Banion, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures:
1. Amendment No. 196 to NPF-47
2. Safety Evaluation

cc: Listserv

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

ENTERGY LOUISIANA, LLC

AND

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

RIVER BEND STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 196
Renewed License No. NPF-47

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

   A. The application for amendment by Entergy Operations, Inc. (EOI, the licensee), dated February 28, 2018, as supplemented by letters dated July 10, July 24, December 17, and December 20, 2018, 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, as amended, 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 license 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-47 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 196 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. EOI shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 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-47 and
Technical Specifications

Date of Issuance: April 29, 2019

ATTACHMENT TO LICENSE AMENDMENT NO. 196

RIVER BEND STATION, UNIT 1

RENEWED FACILITY OPERATING LICENSE NO. NPF-47

DOCKET NO. 50-458

Replace the following pages of the Renewed Facility Operating License No. NPF-47 and 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
-3-	-3-

Technical Specifications

REMOVE	INSERT	REMOVE	INSERT
3.1-9	3.1-9	3.3-38	3.3-38
3.1-12	3.1-12	3.3-46	3.3-46
3.1-17	3.1-17	3.3-52	3.3-52
3.1-19	3.1-19	---	3.3-52a
3.1-21	3.1-21	3.3-59	3.3-59
3.1-22	3.1-22	3.3-60	3.3-60
3.1-25	3.1-25	3.3-64	3.3-64
3.2-1	3.2-1	3.3-67	3.3-67
3.2-2	3.2-2	3.3-70	3.3-70
3.2-3	3.2-3	3.3-73	3.3-73
3.2-6	3.2-6	3.3-76	3.3-76
3.3-3	3.3-3	3.3-77	3.3-77
3.3-4	3.3-4	3.4-2	3.4-2
3.3-5	3.3-5	3.4-6	3.4-6
3.3-6	3.3-6	3.4-7	3.4-7
---	3.3-6a	3.4-9	3.4-9
3.3-12	3.3-12	3.4-11	3.4-11
3.3-13	3.3-13	3.4-13	3.4-13
3.3-14c	3.3-14c	3.4-19	3.4-19
3.3-16	3.3-16	3.4-21	3.4-21
3.3-17	3.3-17	3.4-24	3.4-24
3.3-21	3.3-21	3.4-26	3.4-26
3.3-23	3.3-23	3.4-28	3.4-28
3.3-24	3.3-24	3.4-30	3.4-30
3.3-27	3.3-27	3.4-33	3.4-33
3.3-28	3.3-28	3.5-4	3.5-4
3.3-30	3.3-30	3.5-5	3.5-5
3.3-31	3.3-31	---	3.5-5a

Technical Specifications (continued)

REMOVE	INSERT
3.5-8	3.5-8
3.5-9	3.5-9
3.5-11	3.5-11
3.5-12	3.5-12
3.6-7	3.6-7
3.6-8	3.6-8
3.6-15	3.6-15
3.6-16	3.6-16
3.6-17	3.6-17
3.6-18	3.6-18
3.6-21	3.6-21
3.6-22	3.6-22
3.6-24	3.6-24
3.6-26	3.6-26
3.6-29	3.6-29
3.6-30	3.6-30
3.6-32	3.6-32
3.6-35	3.6-35
3.6-36	3.6-36
3.6-38	3.6-38
3.6-42	3.6-42
3.6-43	3.6-43
3.6-45	3.6-45
3.6-46	3.6-46
3.6-47	3.6-47
3.6-50	3.6-50
3.6-52	3.6-52
3.6-55	3.6-55
3.6-59	3.6-59
3.6-60	3.6-60
3.6-61	3.6-61
3.6-62	3.6-62
3.6-66	3.6-66
3.6-69	3.6-69
3.6-70	3.6-70
3.6-71	3.6-71
3.6-72	3.6-72
3.7-3	3.7-3
3.7-4	3.7-4
3.7-7	3.7-7
3.7-11	3.7-11
3.7-13	3.7-13
3.7-14a	3.7-14a
3.7-15	3.7-15
3.8-5	3.8-5
3.8-6	3.8-6
3.8-7	3.8-7
3.8-8	3.8-8
3.8-9	3.8-9
3.8-10	3.8-10
3.8-11	3.8-11
3.8-12	3.8-12
3.8-13	3.8-13
3.8-14	3.8-14
3.8-15	3.8-15
3.8-16	3.8-16
3.8-23	3.8-23
3.8-25	3.8-25
3.8-26	3.8-26
3.8-27	3.8-27
3.8-32	3.8-32
3.8-33	3.8-33
3.8-35	3.8-35
3.8-37	3.8-37
3.8-40	3.8-40
3.8-42	3.8-42
3.9-1a	3.9-1a
3.9-2	3.9-2
3.9-3	3.9-3
3.9-4	3.9-4
3.9-7	3.9-7
3.9-8	3.9-8
3.9-9	3.9-9
3.9-11	3.9-11
3.9-13	3.9-13
3.10-5	3.10-5
3.10-8	3.10-8
3.10-11	3.10-11
3.10-12	3.10-12
3.10-14	3.10-14
3.10-15	3.10-15
3.10-17	3.10-17
3.10-21	3.10-21
3.10-22	3.10-22
5.0-11	5.0-11
5.0-12	5.0-12
5.0-13	5.0-13
5.0-14	5.0-14
5.0-16	5.0-16
5.0-16a	5.0-16a
---	5.0-16b

(2) EOI, pursuant to Section 103 of the Act and 10 CFR Part 50, to possess, use and operate the facility at the above designated location in accordance with the procedures and limitations set forth in this renewed license;

(3) EOI, pursuant to Section 103 of the Act and 10 CFR Part 70, to receive, possess and to use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

(4) EOI, pursuant to Section 103 of the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(5) EOI, pursuant to Section 103 of the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(6) EOI, pursuant to Section 103 of the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and 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

EOI is authorized to operate the facility at reactor core power levels not in excess of 3091 megawatts thermal (100% rated power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 196 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. EOI shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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 $\leq$ 7 seconds.	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4

(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 (continued)

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 ≥ 1540 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	----------NOTE---------- The minimum required available solution volume is determined by the performance of SR 3.1.7.5. ---------- Verify available volume of sodium pentaborate solution is greater than or equal to the minimum required available solution volume.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is $\geq$ 45°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 that the SLC System satisfies the following equation: $(C)(E) \geq 570$	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 available weight of Boron-10 is ≥ 170 lbs, and the percent weight concentration of sodium pentaborate in solution is ≤ 9.5% by weight, and determine the minimum required available solution volume.	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 ≥ 1250 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

	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 ≥ 23.8% 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 < 23.8% 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 ≥ 23.8% 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 ≥ 23.8% 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 < 23.8% 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 ≥ 23.8% RTP AND In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.3 LINEAR HEAT GENERATION RATE (LHGR)

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

APPLICABILITY: THERMAL POWER ≥ 23.8% 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 < 23.8% 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 ≥ 23.8% RTP AND In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	----------NOTE ---------- Not required to be performed until 15 minutes after entry into the Restricted Region if entry was the result of an unexpected transient. ----------	
	Verify FCBB ≤ 1.0.	In accordance with the Surveillance Frequency Control Program AND Once within 15 minutes following unexpected transient

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 ≥ 23.8% RTP. --- Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power ≤ 2% RTP[(a)].	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.3	Adjust the flow control trip reference card to conform to reactor flow[(b)].	Once within 7 days after reaching equilibrium conditions following refueling outage.

(a) For a period of 30 days beginning with uprate COLR implementation and corresponding plant monitoring computer data bank changes the difference between the average power range monitor (APRM) channels and the calculated power must be within -2% RTP to +7% RTP.

(b) Within 30 days of uprate COLR implementation and corresponding plant monitoring computer data bank changes the flow control trip reference card will be verified to conform to reactor flow in accordance with the uprated COLR.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.4	----------NOTE---------- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.5	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.6	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to withdrawing SRMs from the fully inserted position
SR 3.3.1.1.7	----------NOTE---------- Only required to be met during entry into MODE 2 from MODE 1. ---------- Verify the IRM and APRM channels overlap.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.8	Calibrate the local power range monitors.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.9	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.10	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.11	----------NOTES---------- 1. Neutron detectors and flow reference transmitters 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.b. the digital components of the flow control trip reference cards are excluded. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.13	----------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 3.3.1.1.14	Verify the APRM Flow Biased Simulated Thermal Power–High time constant is within the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.15	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.16	Verify Turbine Stop Valve Closure and Turbine Control Valve Fast Closure Trip Oil Pressure–Low Functions are not bypassed when THERMAL POWER is ≥ 40% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.17	Calibrate the flow reference transmitters.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.18	----------NOTES---------- 1. Neutron detectors are excluded. 2. For Functions 3, 4, and 5 in Table 3.3.1.1-1, the channel sensors are excluded. --- Verify the RPS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.3.1	Verify each OPERABLE channel of PBDS instrumentation not in Hi-Hi DR Alarm.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3.2	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3.3	Perform CHANNEL FUNCTIONAL TEST.	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 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 > 68.2% 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
SR 3.3.2.1.9	Verify the bypassing and movement of control rods required to be bypassed in Rod Action Control System (RACS) is in conformance with applicable analyses by a second licensed operator or other qualified member of the technical staff.	Prior to and during the movement of control rods bypassed in RACS

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	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, except valve position instrumentation.	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: ≤ 7% closed. b. TCV Fast Closure, Trip Oil Pressure — Low: ≥ 465 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 and TCV Fast Closure, Trip Oil Pressure — Low Functions are not bypassed when THERMAL POWER is ≥ 40% 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: $\geq$ -47 inches; and b. Reactor Steam Dome Pressure–High: $\leq$ 1165 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

----------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	----------NOTE---------- Channel sensors are excluded. ----------	
	Verify the ISOLATION SYSTEM RESPONSE TIME for the Main Steam Isolation Valves is within limits.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.1.2 Declare associated isolation dampers inoperable. AND	1 hour
	C.2.1 Place the associated ventilation subsystem in operation. OR	1 hour
	C.2.2 Declare associated ventilation subsystem inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

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

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

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

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 LOGIC SYSTEM FUNCTIONAL TEST.	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 Containment Unit Cooler 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 containment unit cooler 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 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 3.3.6.4.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4.2	Calibrate the trip unit.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Relief Function Low: 1133 ± 15 psig Medium: 1143 ± 15 psig High: 1153 ± 15 psig b. LLS Function Low open: 1063 ± 15 psig close: 956 ± 15 psig Medium open: 1103 ± 15 psig close: 966 ± 15 psig High open: 1143 ± 15 psig close: 976 ± 15 psig	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.7.1-1 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 CRFA initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.3	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.5	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 2 hours provided the associated Function maintains DG initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.4	Perform 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 V Bus B ≤ 132 V b. Undervoltage Bus A ≥ 115 V Bus B ≥ 115 V c. Underfrequency (with time delay set to ≤ 4.0 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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Requirements B.3, B.4, or B.5 of the LCO not met.	C.1 Satisfy the requirements of the LCO.	24 hours
D. Required actions and associated completion times of conditions A, B, or C not met. OR No recirculation loops in operation.	D.1 Be in Mode 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	----------NOTE---------- Not required to be performed until 24 hours after both recirculation loops are in operation. ---------- Verify recirculation loop 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 > 23.8% 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

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
SR 3.4.7.2	Perform CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.3	Perform CHANNEL CALIBRATION of required leakage detection instrumentation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

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 less than 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	COMPELETION 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. 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:	In accordance with the Surveillance Frequency Control Program
	a. RCS pressure and RCS temperature are within the limits of Figure 3.4.11-1,	
	b. RCS heatup and cooldown rates are ≤ 100°F in any one hour period for core not critical and core critical limits.	
	c. RCS heatup and cooldown rates are ≤ 20°F in any one hour period for inservice leak and hydrostatic testing limits.	

(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 ≥ 70°F.	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 ≥ 70°F.	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 ≥ 70°F.	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 ≤ 1075 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 ≤ 1075 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---------- 1. Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the residual heat removal 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 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 ≥ 131 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 pump differential pressure. SYSTEM / FLOW RATE / PUMP DIFFERENTIAL PRESSURE LPCS: ≥ 5010 gpm: ≥ 282 psid LPCI: ≥ 5050 gpm: ≥ 102 psid HPCS: ≥ 5010 gpm: ≥ 415 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 each ECCS injection/spray subsystem is within limits.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.2.1	Verify DRAIN TIME is $\geq$ 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 $\geq$ 13 ft 3 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 $\geq$ 13 ft 3 inches; or b. Condensate storage tank water level is $\geq$ 11 ft 1 inch.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	Verify, for the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.5	----------NOTES---------- 1. A low pressure coolant injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned and not otherwise inoperable. 2. 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 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 actuation 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 subsystem 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 $\leq$ 1075 psig and $\geq$ 920 psig, the RCIC pump can develop a flow rate $\geq$ 600 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.4	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----------	
	Verify, with RCIC steam supply pressure $\leq$ 165 psig and $\geq$ 150 psig, the RCIC pump can develop a flow rate $\geq$ 600 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 applicable to SR 3.6.1.1.1. ---------- Perform required primary containment air lock leakage rate testing in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.2.2	Verify primary containment air lock seal air flask pressure is ≥ 90 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.2.3	----------NOTE---------- Only required to be performed upon entry or exit through the primary containment air lock. ---------- Verify only one door in the primary containment air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 > 1.50 psig for a period of 24 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 36 inch primary containment purge valves are open for pressure control, ALARA or air quality considerations for personnel entry. Also, not required to be met during Surveillances, or special testing on the purge system that requires the valves to be open. 3. If one Standby Gas Treatment (SGT) subsystem is in the primary containment purge flow path, both SGT subsystems must be OPERABLE. In addition only one SGT subsystem may be operating in the primary containment purge flow path. ----------	
	Verify each 36 inch primary containment purge valve is closed.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.2	----------NOTES---------- 1. Only required to be met in MODES 1, 2, and 3. 2. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 3. 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 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 3.6.1.3.4	Verify the isolation time of each power operated and each automatic PCIV, except MSIVs, is within limits.	In accordance with the Inservice Testing Program
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 Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq$ 3 seconds and $\leq$ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.8	Verify in-leakage rate of ≤ 340 scfh for each of the following valve groups when tested at 11.5 psid for MS-PLCS valves. a. Division I MS-PLCS valves b. Division II MS-PLCS valves	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.9	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify the combined leakage rate for all secondary containment bypass leakage paths is ≤ 580,000 cc/hr when pressurized to ≥ P_a.	In accordance with the Primary Containment Leakage Rate Testing Program

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Primary Containment Pressure

LCO 3.6.1.4 Primary containment pressure shall be $\geq$ -0.3 psig and $\leq$ 0.3 psig.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Primary containment pressure not within limits.	A.1	Restore primary containment 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 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 ≤ 90°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. AND B.2 Be in MODE 4.	12 hours 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	Verify each required primary containment unit cooler pressure relief and backdraft damper 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 each required primary containment unit cooler develops a flow rate of ≥ 50,000 cfm on recirculation flow through the unit cooler.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.7.3	Verify each required primary containment unit cooler actuates throughout its emergency operating sequence on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1.9 Main Steam-Positive Leakage Control System (MS-PLCS)

LCO 3.6.1.9 Two MS-PLCS subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MS-PLCS subsystem inoperable.	A.1 Restore MS-PLCS subsystem to OPERABLE status.	30 days
B. Two MS-PLCS subsystems inoperable.	B.1 Restore one MS-PLCS 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	Verify air pressure in each associated PVLCS subsystem is ≥ 101 psig.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.2	Operate each PVLCS compressor ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.9.3	Perform a system functional test of each MS-PLCS subsystem.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.10.1	----------NOTE---------- Not required to be met for vent and drain line pathways provided the total calculated flow rate through open vent and drain pathways is ≤ 70.2 cfm. ----------	
	Verify each penetration flow path, required to be closed during accident conditions, is closed.	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 ≥ 19 ft 6 inches and ≤ 20 ft 0 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 $\geq$ 5050 gpm through the associated heat exchangers to the suppression pool.	In accordance with the Inservice Testing 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 $\geq$ 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

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 3.6.3.3.1	Operate each primary containment/drywell hydrogen mixing subsystem for ≥ 15 minutes.	Every COLD SHUTDOWN, if not performed within the previous 92 days.
SR 3.6.3.3.2	Verify each primary containment/drywell hydrogen mixing subsystem flow rate is ≥ 600 cfm.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment–Operating

LCO 3.6.4.1 The shield building and auxiliary building shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable.	A.1 Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.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 3.6.4.1.1	Verify shield building annulus and auxiliary building vacuum is ≥ 3.0 and ≥ 0.0 inch of vacuum water gauge, respectively.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.2	Verify all secondary containment equipment hatches are closed and sealed and loop seals filled.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3	Verify each secondary containment access door is closed, except when the access opening is being used for entry and exit.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.4	Verify each standby gas treatment (SGT) subsystem will draw down the shield building annulus and auxiliary building to $\geq$ 0.5 and $\geq$ 0.25 inch of vacuum water gauge in $\leq$ 18.5 and $\leq$ 34.5 seconds, respectively.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.5	Deleted	Not Applicable
SR 3.6.4.1.6	Verify each SGT subsystem can maintain $\geq$ 0.5 and $\geq$ 0.25 inch of vacuum water gauge in the shield building annulus and auxiliary building, respectively, for 1 hour.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	Verify the isolation time of each required power operated automatic SCID and FBID is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.2.2	Verify each required automatic SCID and FBID 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.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each SGT subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.3.4	Verify each SGT filter cooling bypass damper can be opened and the fan started.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.4.5 Fuel Building

LCO 3.6.4.5 The fuel building shall be OPERABLE.

APPLICABILITY: During movement of recently irradiated fuel assemblies in the fuel building.

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel building inoperable.	A.1 Suspend movement of recently irradiated fuel assemblies in the fuel building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.5.1	Verify fuel building vacuum is ≥ 0.25 inch of vacuum water gauge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.5.2	Verify all fuel building equipment hatch covers are installed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.5.3	Verify each fuel building access door is closed, except when the access opening is being used for entry and exit.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.4.7.1	Verify one fuel building ventilation charcoal filtration subsystem in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.7.2	Operate each fuel building ventilation charcoal filtration subsystem for ≥ 15 continuous minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.7.3	Perform fuel building ventilation charcoal filtration filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.7.4	Verify each fuel building ventilation charcoal filtration subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.7.5	Verify each fuel building ventilation charcoal filtration filter cooling bypass damper can be opened and the fan started.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.5.1 Drywell

LCO 3.6.5.1 The drywell shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell inoperable.	A.1 Restore drywell to OPERABLE status.	1 hour
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 3.6.5.1.1	Verify personnel door inflatable seal air flask pressure ≥ 75 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.1.2	Verify from an initial pressure of 75 psig, the personnel door inflatable seal pneumatic system pressure does not decay at a rate equivalent to ≥ 20.0 psig for a period of 24 hours.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.5.1.3	Verify bypass leakage is less than or equal to the bypass leakage limit. However, during the first unit startup following bypass leakage testing performed in accordance with this SR, the acceptance criterion is ≤ 10% of the drywell bypass leakage limit.	--------NOTE------- SR 3.0.2 is not applicable for extensions > 9 months ---------- 24 months following 2 consecutive tests with bypass leakage greater than the bypass leakage limit until 2 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 In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.5.1.4	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 3.6.5.1.5	Verify seal leakage rate when the gap between the door seals is pressurized to ≥ 3 psid.	Once within 72 hours after each drywell air lock door closing
SR 3.6.5.1.6	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	Deleted	
SR 3.6.5.2.2	Verify drywell air lock seal air flask pressure is ≥ 75 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.2.3	----------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
SR 3.6.5.2.4	Deleted	
SR 3.6.5.2.5	Verify, from an initial pressure of 75 psig, the drywell air lock seal pneumatic system pressure does not decay at a rate equivalent to > 20.0 psig for a period of 24 hours.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.3.1	Verify each 24 inch drywell purge isolation valve is sealed closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.3.2	----------NOTE---------- Not required to be met when the primary containment/drywell hydrogen mixing inlet or outlet valves are open for pressure control. ----------	
	Verify each primary containment/drywell hydrogen mixing isolation valve is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.3.3	----------NOTES---------- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for 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 3.6.5.3.4	Verify the isolation time of each power operated and each automatic drywell isolation valve is within limits.	In accordance with the Inservice Testing Program
SR 3.6.5.3.5	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
SR 3.6.5.3.6	Verify the cumulative time that the primary containment/drywell hydrogen mixing inlet or outlet penetrations are open to be ≤ 5 hours per 365 days in Modes 1 and 2, and ≤ 90 hours per 365 days in Mode 3.	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 ≥ -0.3 psid and ≤ 1.2 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. AND B.2 Be in MODE 4.	12 hours 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 ≤ 145°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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Required Action and associated Completion Time of Condition A, E, or G not met.	H.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours
I. Required Action and associated Completion Time of Condition B, D or F not met. OR Both SSW subsystems inoperable for reasons other than Condition F. OR Three or four UHS cooling tower fan cells inoperable.	I.1 Be in MODE 3. AND I.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify the water level of UHS cooling tower basin is ≥ 78%.	In accordance with the Surveillance Frequency Control Program
SR 3.7.1.2	Verify the average water temperature of UHS is ≤ 88°F.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.1.3	Operate each cooling tower fan cell for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.1.4	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 3.7.1.5	Verify each SSW subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CRFA subsystems inoperable during movement of recently irradiated fuel assemblies in the primary containment or fuel building. OR One or more CRFA subsystems inoperable due to inoperable CRE boundary during movement of recently irradiated fuel assemblies in the primary containment or fuel building.	F.1 Suspend movement of recently irradiated fuel assemblies in the primary containment and fuel building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Operate each CRFA subsystem for ≥ 15 continuous minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.2	Perform required CRFA filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.2.3	Verify each CRFA subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition B not met during movement of recently irradiated fuel assemblies in the primary containment or fuel building.	E.1 Suspend movement of recently irradiated fuel assemblies in the primary containment and fuel building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	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 3.7.4.1	Verify the gross gamma activity rate of the noble gases is ≤ 290 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 3.7.4.2	----------NOTE---------- Not required to be performed until 31 days after any main steam line not isolated and SJAE in operation. ---------- Verify the gross gamma activity rate of the noble gases is ≤ 290 mCi/second after decay of 30 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.5.1	Verify one complete cycle of each main turbine bypass valve.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.2	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.6 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

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 3.8.1.7 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 gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met. ---------- Verify each DG starts from standby conditions and achieves: a. For DG 1A and DG 1B, steady state voltage ≥ 3740 V and ≤ 4368 V and frequency ≥ 58.8 Hz and ≤ 60.2 Hz. b. For DG 1C: 1. Maximum of 5400 V, and 66.75 Hz, and 2. Steady state voltage ≥ 3740 V and ≤ 4580 V and frequency ≥ 58.8 Hz and ≤ 60.2 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 3.8.1.7 ---------- Verify each DG operates for ≥ 60 minutes at a load ≥ 3050 kW and ≤ 3100 kW for DG 1A and DG 1B, and ≥ 2525 kW and ≤ 2600 kW for DG 1C.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4	Verify each day tank contains ≥ 316.3 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	----------NOTE---------- All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts from standby conditions and achieves: a. For DG 1A and DG 1B: 1. In ≤ 10 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and 2. Steady state voltage ≥ 3740 V and ≤ 4368 V and frequency ≥ 58.8 Hz and ≤ 60.2 Hz. b. For DG 1C: 1. Maximum of 5400 V, and 66.75 Hz, and 2. In ≤ 13 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and 3. Steady state voltage ≥ 3740 V and ≤ 4580 V and frequency ≥ 58.8 Hz and ≤ 60.2 Hz.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. 2. SR 3.8.1.8.b is only required to be met if 22 kV onsite circuit is supplying Division III safety related bus E22-S004 from normal power transformer STX-XNS1C. ---------- Verify, for required unit power supplies: a. Manual transfer of unit power supply from the normal offsite circuit to required alternate offsite circuit; and b. Automatic transfer of bus E22-S004 through NNS-SWG1A or NNS-SWG1B from the 22 kV onsite circuit to required offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.9	----------NOTE---------- 1. Credit may be taken for unplanned events that satisfy this SR. 2. If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.9 ---------- Verify each DG rejects a load greater than or equal to its associated single largest post accident load and following load rejection, the engine speed is maintained less than nominal plus 75% of the difference between nominal speed and the overspeed trip 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---------- Credit may be taken for unplanned events that satisfy this SR. --- Verify each DG operating at a power factor ≤ 0.9 does not trip and voltage is maintained ≤ 4784 V for DG 1A and DG 1B and ≤ 5400 V for DG 1C during and following a load rejection of a load ≥ 3050 kW and ≤ 3130 kW for DGs 1A and 1B and ≥ 2525 kW and ≤ 2600 kW for DG 1C.	In accordance with the Surveillance Frequency Control Program
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 1C) 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 I and II; and	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.1.11 (continued) c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C, 2. energizes auto-connected shutdown loads, 3. maintains steady state voltage i. for DG 1A and DG 1B ≥ 3740 V and ≤ 4368 V, ii. for DG 1C ≥ 3740 V and ≤ 4580 V 4. maintains steady state frequency ≥ 58.8 Hz and ≤ 60.2 Hz, and 5. supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	

(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 1C) 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. For DG 1C during the auto-start maintains voltage ≤ 5400 V and frequency ≤ 66.75 Hz; b. In ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C after auto-start and during tests, achieves voltage ≥ 3740 V and frequency ≥ 58.8 Hz. c. Achieves steady state voltage 1. For DG 1A and DG 1B ≥ 3740 V and ≤ 4368 V, 2. For DG 1C ≥ 3740 V and ≤ 4580 V, and 3. For DG 1A, 1B, and 1C, frequency of ≥ 58.8 and ≤ 60.2 Hz; and d. Operates for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.13	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, or 3. (Not applicable to DG 1C) However, credit may be taken for unplanned events that satisfy this SR. --- Verify each DG's automatic trips are bypassed on an actual or simulated ECCS initiation signal except: a. Engine overspeed; and b. Generator differential current.	In accordance with the Surveillance Frequency Control Program
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. --- Verify each DG operating at a power factor ≤ 0.9, operates for ≥ 24 hours: a. For DG 1A and DG 1B loaded ≥ 3050 kW and ≤ 3130 kW; and b. For DG 1C: 1. For ≥ 2 hours loaded ≥ 2750 kW and ≤ 2850 kW, and 2. For the remaining hours of the test loaded ≥ 2525 kW and ≤ 2600 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 loaded ≥ 3050 kW and ≤ 3100 kW for DG 1A and DG 1B, and ≥ 2525 kW and ≤ 2600 for DG 1C, or operating temperatures have stabilized, which ever is longer. 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: 1. In ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C voltage ≥ 3740 V and frequency ≥ 58.8 Hz, and 2. Steady state voltage a) For DG 1A and DG 1B ≥ 3740 V and ≤ 4368 V b) For DG 1C ≥ 3740 V and ≤ 4580 V and c) For DG 1A, 1B, and 1C frequency ≥ 58.8 Hz and ≤ 60.2 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 1C) 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
SR 3.8.1.17	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, or 3. (Not applicable to DG 1C) However, 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. (Not applicable to DG 1C) However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify sequence time is within ± 10% of design for each load sequencer timer.	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 1C) 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 I and II; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C, 2. energizes auto-connected emergency loads, 3. achieves steady state voltage i. for DG 1A and DG 1B ≥ 3740 V and ≤ 4368 V, ii. for DG 1C ≥ 3740 V and ≤ 4580 V, 4. achieves steady state frequency ≥ 58.8 Hz and ≤ 60.2 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: 1. In ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C voltage ≥ 3740 V and frequency ≥ 58.8 Hz, and 2. Steady state voltage a) For DG 1A and DG 1B ≥ 3740 V and ≤ 4368 V, b) For DG 1C ≥ 3740 V and ≤ 4580 V, and c) For DG 1A, 1B, and 1C a frequency ≥ 58.8 Hz and ≤ 60.2 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 ≥ 45,495 gal of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify lube oil inventory is: a. ≥ 367 gal for DGs 1A and 1B; and b. ≥ 295 gal for DG 1C.	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 1A and 1B; and b. ≥ 200 psig for DG 1C.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 130.2 V on float charge.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance 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. AND Verify the total resistance for battery inter-cell, inter-rack, inter-tier, and terminal connections combined is ≤ 27.45 E-4 ohms.	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.	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. AND Verify the total resistance for battery inter-cell, inter-rack, inter-tier, and terminal connections combined is ≤ 27.45 E-4 ohms.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.6	Verify each battery charger supplies ≥ 300 amps for chargers 1A and 1B and ≥ 50 amps for charger 1C at ≥ 130.2 V for ≥ 8 hours.	In accordance with the Surveillance Frequency Control Program
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 III). 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 III). 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 ---------NOTE------- Only applicable when battery shows degradation or has reached 85% of expected life. ---------- 18 months

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 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 > 144 V
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 60°F.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters–Operating

LCO 3.8.7 The Division I and Division II inverters shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTE----------
Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems–Operating," with any AC vital bus de-energized.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Division I or II inverter inoperable.	A.1 Restore Division I and II inverters to OPERABLE status.	24 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. ---------- Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, frequency, and alignment to required AC vital buses.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct inverter voltage, frequency, and alignments to required AC vital buses.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus 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	Immediately
	A.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	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 $\geq$ 1540 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 ≥ 23 ft above the top of the RPV flange.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify RPV water level is ≥ 23 ft above the top of the RPV flange.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

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

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	----------NOTE---------- Entry and exit is permissible under administrative control. ---------- Initiate action to close one door in each primary containment air lock.	 Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	C.2	Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify one RHR shutdown cooling subsystem is operating.	In accordance with the Surveillance Frequency Control Program
SR 3.9.8.2	Verify required 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. (continued)	B.2	----------NOTE---------- Entry and exit is permissible under administrative control. ---------- Initiate action to close one door in each primary containment air lock.	 Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	C.2	Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

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

ACTIONS (continued)

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 (continued)

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 (continued)

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 ≥ 1540 psig.	In accordance with the Surveillance Frequency Control Program

ASME OM Code and applicable Addenda terminology for inservice testing activities	Required frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required frequencies and to other normal and accelerated frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

5.5.7 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation 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 in accordance with the Surveillance Frequency Control Program.

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 2, and ASME N510-1989 at the system flowrate specified below ± 10%:

ESF Ventilation System	Flowrate
SGTS	12,500 cfm
FBVS	10,000 cfm
CRFAS	4,000 cfm

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 2, and ASME N510-1989 at the system flowrate specified below ± 10%:

ESF Ventilation System	Flowrate
SGTS	12,500 cfm
FBVS	10,000 cfm
CRFAS	4,000 cfm

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and the relative humidity specified below:

ESF Ventilation System	Penetration	RH
SGTS	5.0%	95%
FBVS	5.0%	95%
CRFAS	1.0%	95%

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than the value specified below when tested in accordance with Regulatory Guide 1.52, Revision 2, and ASME N510-1989 at the system flowrate specified below ± 10%:

ESF Ventilation System	Delta P	Flowrate
SGTS	< 8" WG	12,500 cfm
FBVS	< 8" WG	10,000 cfm
CRFAS	< 8" WG	4,000 cfm

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the main condenser offgas treatment system and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

The program shall include:

a. The limits for concentrations of hydrogen in the main condenser offgas treatment system and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion); and

b. A surveillance program to ensure that the quantity of radioactive material contained in any unprotected outdoor tank is limited to ≤ 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

(continued)

5.5.9 Diesel Fuel Oil Testing Program (continued)

program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

1. an API gravity or an absolute specific gravity within limits,

2. a flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

3. a clear and bright appearance with proper color;

b. Other properties of the new fuel oil are within limits for ASTM 2D fuel oil within 31 days of addition to storage tanks; and

c. Total particulate concentration of the fuel oil in the storage tanks is < 10 mg/l when tested in accordance with ASTM D-2276, Method A—2 or A—3 at a frequency in accordance with the Surveillance Frequency Control Program.

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;

(continued)

5.5 Programs and Manuals

5.5.11 Technical Specifications (TS) Bases Control Program (continued)

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

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 Surveillance Frequency Control Program

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

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

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

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

5.5.13 Primary Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing 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 in accordance with the guidelines contained in NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J," Revision 3-A, dated July 2012, and the conditions and limitations specified in NEI 94-01, Revision 2-A, Section 4.1, dated October 2008.

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 7.6 psig.

(continued)

5.5.13 Primary Containment Leakage Rate Testing Program (continued)

The maximum allowable primary containment leakage rate, L_a, at P_a, shall be 0.325% of primary containment air weight per day.

The Primary Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60\ L_a$ for the Type B and Type C tests and $\leq 0.75\ L_a$ for Type A tests.

The provisions of SR 3.0.2 do not apply to test frequencies specified in the Primary Containment Leakage Rate Testing Program.

The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

5.5.14 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room 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 (TEDE) for the duration of the accident. The program shall include the following elements:

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

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

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and, (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0, except that testing specified at a frequency of 18 months is required at a frequency in accordance with the Surveillance Frequency Control Program.

(continued)

5.5 Programs and Manuals

5.5.14 Control Room Envelope Habitability Program (continued)

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one subsystem of the CRFA System, operating at the flow rate required by the VFTP, at a Frequency in accordance with the Surveillance Frequency Control Program. The results shall be trended and used as part of the CRE boundary assessment specified in 5.5.14.c (ii).

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses 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 measuring CRE pressure 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. 196 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

1.0 INTRODUCTION

By application dated February 28, 2018 (Reference 1), as supplemented by letters dated July 10, July 24, December 17, and December 20, 2018 (References 2, 3, 4, and 5, respectively), Entergy Operations, Inc. (Entergy, the licensee) submitted a request for changes to the technical specifications (TSs) for River Bend Station, Unit 1 (RBS).

The proposed changes would modify the TSs to adopt the U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specifications Task Force (TSTF) Standard Technical Specifications (STSs) Change Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control - RITSTF [Risk-Informed TSTF] Initiative 5b" (Reference 6) for RBS.

The supplemental letters dated July 10, July 24, December 17, and December 20, 2018, 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 May 22, 2018 (83 FR 23733).

2.0 REGULATORY EVALUATION

2.1 Description of the Proposed Changes

The licensee proposed to modify the TSs by relocating specific surveillance requirement (SR) frequencies to a licensee-controlled program in accordance with Nuclear Energy Institute (NEI) 04-10, Revision 1 (Reference 7). The licensee stated that the proposed change is consistent with the adoption of NRC-approved TSTF-425, Revision 3. When implemented, TSTF-425 allows licensees to relocate most periodic frequencies of TS SRs to a licensee-controlled program, referred to as the Surveillance Frequency Control Program

(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 (e.g., "drywell to suppression chamber differential pressure decrease").

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

3.1 Reactivity Control System
3.2 Power Distribution Limits
3.3 Instrumentation
3.4 Reactor Coolant System (RCS)
3.5 Emergency Core Cooling Systems (ECCS), Reactor Pressure Vessel (RPV) 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 RBS TS Chapter 5.0, "Administrative Controls." Proposed TS 5.5.12, "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 to ensure 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, and 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 a letter dated September 19, 2007 (Reference 8), the NRC staff approved Topical Report NEI 04-10, Revision 1, as an acceptable methodology for referencing in licensing actions to the extent specified in NEI 04-10, Revision 1, and under the limitations and conditions delineated in the safety evaluation (SE) providing the basis for NRC acceptance of NEI 04-10, Revision 1.

The licensee proposed other changes and deviations from TSTF-425, which are discussed in SE Section 3.3, "Deviations from TSTF-425 and Other Changes."

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 STS. In this 1993 publication, the NRC states (at 39135):

> 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)] 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 detail 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 categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; (3) SRs; (4) design features; and (5) administrative controls. These categories will remain in the RBS TSs.

Paragraph 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 SR 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 SR frequencies in the SFCP would be made using the methodology contained in NEI 04-10, Revision 1, including qualitative considerations, results of risk analyses, sensitivity studies and any bounding analyses, and recommended monitoring of structures, systems, and components (SSCs), and are required to be documented.

Existing regulatory requirements, such as 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants" (i.e., the Maintenance Rule), and 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," require licensee monitoring of surveillance test failures and implementing corrective actions to address such failures. Such failures can result in the licensee increasing the frequency of a surveillance test. In addition, if the TSs are amended to require that changes to the frequencies listed in the SFCP be made in accordance with NEI 04-10, Revision 1, the licensee would be required to monitor the performance of SSCs for which SR 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" (Reference 9), 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" (Reference 10), 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" (Reference 11), 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" (Reference 12), 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" (Reference 13). 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" (Reference 14), 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.

NUREG-1434, Revision 4, "Standard Technical Specifications, General Electric BWR [Boiling Water Reactor]/6 Plants," Volume 1, Specifications, and Volume 2, Bases (Reference 15), contain the improved STS for General Electric BWR/6 plants. The improved STS were developed based on the criteria in the Final Commission Policy Statement of Technical Specifications Improvements for Nuclear Power Reactors, dated July 22, 1993 (58 FR 39132), which was subsequently codified by changes to 10 CFR 50.36 (60 FR 36953).[1]

3.0 TECHNICAL EVALUATION

The licensee's adoption of TSTF-425, Revision 3, would provide for relocation of applicable SR frequencies to the SFCP, would provide for the addition of the SFCP to the Administrative Controls section of TSs, and would require the application of NEI 04-10, Revision 1, for any changes to SR frequencies within the SFCP. The licensee's application for the changes proposed in TSTF-425, Revision 3, included documentation regarding technical adequacy of the PRA consistent with the requirements of RG 1.200, Revision 2. In accordance with NEI 04-10, Revision 1, PRA methods are used, in combination 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 Five Key Safety Principles

The guidance in RG 1.177, Revision 1, outlines five key safety principles necessary for risk-informed changes to TSs. Each of these principles is addressed in 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 LAR satisfies each principle.

---

[1] RBS converted to the standard TSs via amendment dated July 20, 1995 (ADAMS Accession No. ML021610732).

3.1.1 The Proposed Change Meets Current Regulations

Paragraph 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 surveillances themselves would remain in the TSs as required by 10 CFR 50.36(c)(3), but the frequencies would be specified by references to the SFCP, which per proposed TS 5.5.12, must ensure that LCOs are met. This change is analogous to other NRC-approved TS changes in which the SRs are retained in the TSs, but the related surveillance frequencies are relocated to licensee-controlled documents, such as surveillances performed in accordance with the Inservice Testing Program (required by RBS TS 5.5.6) and the Primary Containment Leakage Rate Testing Program (required by RBS TS 5.5.13). 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 requirements in 10 CFR 50.65 and 10 CFR Part 50, Appendix B, Criterion XVI, and the monitoring of surveillance test failures that would be required by NEI 04-10, Revision 1, per proposed TS 5.5.12, will ensure that surveillance frequencies are sufficient to satisfy 10 CFR 50.36(c)(3) requirements and that any test failures will be identified and corrective actions will be implemented to address such failures . The licensee's 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 to relocate surveillance frequencies meets the first key safety principle of RG 1.177, Revision 1, by complying with the 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 are preserved, and the potential for the introduction of new common cause failure 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 adoption of TSTF-425, Revision 3, includes the application of NEI 04-10, Revision 1, for any changes to surveillance frequencies within the SFCP. The guidance in 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. The guidance in RG 1.174, Revision 3, and RG 1.177, Revision 1, for changes to CDF and LERF, is achieved by evaluation using a comprehensive risk analysis, which assesses the impact of proposed changes, including contributions from human errors and common cause failures. 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 common cause failures. The NRC staff concludes that both the quantitative risk analysis and the qualitative considerations assure that a reasonable balance of defense-in-depth is maintained in order 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

To evaluate a change in the relocated surveillance frequency, the licensee will perform a probabilistic risk evaluation using the guidance contained in NRC-approved NEI 04-10, Revision 1, in accordance with the SFCP. The licensee states that the SFCP provides the necessary administrative controls to require that SRs related to testing, calibration and inspection 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 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 to make that assessment will include ensuring the proposed surveillance test frequency change is not in conflict with approved industry codes and standards nor does it adversely affect 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 basis (including the Updated Final Safety Analysis Report and the Bases to TSs), 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. As a result, the NRC staff concludes that safety margins are maintained by the proposed methodology, and, therefore, the third key safety principle of RG 1.177 is satisfied.

3.1.4 When Proposed Changes Result in an Increase in Core Damage Frequency 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 future changes to the surveillance frequencies in the SFCP. The risk evaluation includes the 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 adoption of TSTF-425, Revision 3 (which is reflected in proposed TS 5.5.12), includes the application of NEI 04-10, Revision 1, to any changes to the frequencies listed in the SFCP. The guidance in NEI 04-10, Revision 1, satisfies the intent of RG 1.177, Revision 1, guidelines for evaluating the change in risk, and for assuring that such changes are small by providing the technical methodology to support risk-informed TS 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 higher the change in risk or the greater the uncertainty in that risk from the requested TS change, or both, the more rigor that must go into ensuring the quality of the PRA.

Consistent with the information provided in Regulatory Issue Summary (RIS) 2007-06, "Regulatory Guide 1.200 Implementation," dated March 22, 2007 (Reference 16), the NRC staff used RG 1.200, Revision 2, to assess the technical adequacy of the PRA used to support risk-informed applications received after March 2010.

The guidance in RG 1.200, Revision 2, provides for assessing the technical acceptability of a PRA. RG 1.200 endorses (with clarifications and qualifications) the use of the following:

1. American Society of Mechanical Engineers (ASME)/American Nuclear Society (ANS) RA-Sa-2009, "Addenda to ASME RA-S-2008 Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications" (i.e., the PRA Standard) (Reference 17);

2. NEI 00-02, "Probabilistic Risk Assessment (PRA) Peer Review Process Guidance" (Reference 18); and

3. NEI 05-04, "Process for Performing Internal Events PRA Peer Reviews Using the ASME/ANS PRA Standard," Revision 2 (Reference 19).

RG 1.200, Revision 1 endorsed the internal events PRA standard ASME RA-Sb-2005, "Addenda to ASME RA-S-2002 Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications."

The RBS PRA to support the SFCP used an internal events PRA model, which included internal flooding. Additionally, the licensee performed an assessment of the PRA models used to support the SFCP using the guidance of RG 1.200, Revision 2, to assure that the PRA models were technically acceptable for use in assessing the change in risk due to changes to surveillance frequencies of SSCs, using plant-specific data and models. The guidance in NEI 04-10, Revision 1, necessitates that the supporting requirements of the PRA standard meet

Capability Category II for the internal events PRA and any identified deficiencies to those supporting requirements be assessed further to determine any impacts of proposed decreases to surveillance frequencies, including the use of sensitivity studies where appropriate.

The licensee stated that the RBS internal events PRA model, Revision 5, underwent a full-scope peer review in April 2011. The Boiling Water Reactor Owners Group conducted the peer review and reviewed the PRA model against the ASME/ANS RA-Sa-2009 PRA standard as endorsed by RG 1.200, Revision 2. The licensee stated that it subsequently completed the RBS PRA model, Revision 6, which incorporated the resolutions to all of the significant Facts and Observations (F&Os) from the full-scope peer review, as well as a PRA upgrade incorporating updates to the internal flooding and LERF analyses. The licensee also stated that a focused-scope peer review of the PRA model (i.e., Revision 6 upgrade), for internal flooding and LERF, was conducted in September 2017 against the ASME/ANS RA-Sa-2009 PRA standard as endorsed by RG 1.200, Revision 2.

In Tables 1 and 2 of Attachment 2 to the LAR dated February 28, 2018 (Reference 1), the licensee provided a description and disposition of the F&Os from the 2011 and 2017 peer reviews, respectively. The NRC staff reviewed the summary of the peer review findings and the licensee's resolution or assessment of the impact of the use of the PRA to manage the SFCP. The NRC staff determined whether any gaps in the PRA model were identified that could impact the use of the PRA and ensured that any identified gaps in meeting Capability Category II would be addressed in the SFCP by using the methodology in NEI 04-10, Revision 1, consistent with RG 1.200, Revision 2. For the F&Os described below, the licensee did not initially provide justification for concluding that the F&O had a minimal impact on the use of the PRA with respect to the changes to the surveillance frequencies in the SFCP or describe how the impact of the unresolved F&O would be evaluated. In response to NRC staff questions, the licensee provided additional information to address the F&Os.

By supplemental letter dated December 17, 2018 (Reference 4), the licensee provided updated resolutions and assessments. The 2017 focused-scope peer review team created F&O RB-6096, related to internal flooding Supporting Requirement IFSO-A4, which identified that no evaluation was performed to identify human-induced flooding mechanisms. In its letter dated December 17, 2018, the licensee stated that it reviewed the test and maintenance procedures for human-induced flooding mechanisms and identified that only vent and fill operations create an opening in a system. These openings are small and have a low associated flow rate. Therefore, the likelihood of a maintenance-induced flooding event of any significance is not significant. Based on the licensee's assessment of low likelihood of human induced flooding mechanisms, the NRC staff concludes that this F&O has a negligible impact on this use of the PRA for changes to the surveillance frequencies in the SFCP.

The 2017 focused-scope peer review team created F&O RB-6101, related to Supporting Requirement LE-F3, which identified that a review of key assumptions in the LERF analysis had not been performed. In its December 17, 2018 letter, the licensee clarified that the LERF analysis reviews the key model assumptions and the applicability against the generic sources of model uncertainty. The licensee explained that in order to ensure the selected sensitivity cases adequately address the uncertainty from key assumptions, those sources of uncertainty with the potential to challenge the acceptance criteria for candidate STI changes, would be evaluated with additional sensitivity studies during the TSTF-425, Revision 3, implementation in accordance with NEI 04-10, Revision 1. Because the licensee confirmed that the key assumptions in the LERF analysis will be reviewed in accordance with the NRC-approved

NEI 04-10, Revision 1, the NRC staff concludes that this F&O has no impact on the use of the PRA for changes to the surveillance frequencies in the SFCP.

The 2017 focused-scope peer review team created F&O RB-6106, related to internal flooding Supporting Requirement IFQU-A5, which identified that a consistency check of the internal flooding human error probabilities (HEPs) was not performed. In its letter dated December 17, 2018, the licensee stated that a consistency check was performed for the internal flooding HEPs and that the HEPs were reasonable and consistent with similar operator actions in the analysis, given the context of the scenarios and plant operational practices, procedures, and experience. Because the licensee confirmed that it performed internal flooding HEP consistency evaluations and found the HEPs acceptable, the NRC staff concludes that this F&O has no impact on the proposed use of the PRA.

The 2017 focused-scope peer review team created F&O RB-6108, related to internal flooding Supporting Requirement IFQU-A7, which identified that the human failure events (HFE) values in the dependency analysis were not set (seeded) with sufficiently high values to ensure that cutsets with multiple HFEs were not truncated. In its letter dated December 17, 2018, the licensee explained that the HEPs for all operator actions were set to a sufficiently high value and that this F&O has no impact on the application. Based on the information provided, the NRC staff concludes that the licensee has addressed the seeding of HEPs for the dependency analysis appropriately for the proposed use of the PRA.

The 2017 focused-scope peer review team created F&O RB-6110, related to internal flooding Supporting Requirement IFQU-B3, which identified that a review of sources of modeling uncertainty in the internal flooding PRA and its impact on the results was not performed. In its letter dated December 17, 2018, the licensee stated that a review of key model assumptions as well as the generic sources of model uncertainty was performed consistent with the guidance in NUREG-1855, Revision 1, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decisionmaking," dated March 2017 (Reference 20). The licensee stated that the sources of uncertainty will be used to identify candidate sensitivity analyses and assess those uncertainties that may impact the internal flooding analysis results. Because the licensee confirmed that it reviewed the key assumptions in the LERF analysis and will use those results to address impacts to the internal flooding analysis results, the NRC staff concludes that this F&O has no impact on the proposed use of the PRA.

Based on the preceding analysis, the NRC staff concludes that the licensee addressed the findings from the peer reviews and demonstrated that they have no significant impact on the technical adequacy of the PRA. Therefore, the NRC staff concludes that the licensee has evaluated its internal events PRA against the current ASME/ANS RA-Sa-2009 PRA standard and RG 1.200, Revision 2, and that the internal events, including internal flooding PRA model, is of sufficient technical adequacy to support the evaluation of changes to TS surveillance frequencies that are relocated to the SFCP.

3.1.4.2 Scope of the PRA

In accordance with NEI 04-10, Revision 1, the licensee should evaluate each proposed change to a relocated surveillance frequency to determine the change's potential impact on risk (CDF and LERF) from internal events, fires, seismic, other external events, and at shutdown conditions. In cases where a PRA of sufficient scope or quantitative risk models are unavailable, the licensee may use bounding analyses, or other conservative quantitative

evaluations. A qualitative screening analysis may be used when the surveillance frequency impact on plant risk is shown to be negligible or zero.

The licensee has full-power internal events and internal floods PRA models. These models received peer reviews as discussed in SE Section 3.1.4.1. As required by proposed TS 5.5.12 and in accordance with NEI 04-10, Revision 1, the licensee will use these models to perform quantitative evaluations to support the development of changes to surveillance frequencies in the SFCP.

RBS does not have PRA models for internal fires, seismic events, external flooding, high winds, and other external hazards (e.g. transportation, nearby facility accidents, etc.). As required by proposed TS 5.5.12 and in accordance with NEI 04-10, Revision 1, the licensee will perform an initial qualitative screening analysis, and, if the qualitative information is not sufficient to provide confidence that the net impact of the STI change would be negligible, a bounding analysis will be performed. In its letter dated December 17, 2018, the licensee stated that qualitative assessment of external hazards will assess available Individual Plant Examination of External Events information to determine the impact on proposed STI changes, consistent with Step 10a of the NEI 04-10 methodology. The licensee stated that insights may also be obtained from the fire safe shutdown analysis and risk management actions for managing fire risk. In addition, bounding analyses for STI changes will be performed in accordance with Step 10b of NEI 04-10, Revision 1.

Additionally, the licensee stated that the evaluation of fire risk and other external events risk supporting the SFCP will reflect and consider the current plant configuration and operating experience. The licensee states that for applicable STI change evaluations, qualitative evaluation of fire and external events risk in support of Step 10b would include consideration of applicability to the current plant configuration and operating experience. The licensee will document this information for each STI change provided to the Integrated Decision Panel.

Based on the above considerations, the NRC staff finds the licensee's treatment of external events acceptable. In addition, the staff concludes that through the application of NRC-approved NEI 04-10, Revision 1, per proposed TS 5.5.12, the licensee's evaluation methodology is sufficient to ensure the scope of the risk contribution of each surveillance frequency change is properly identified for evaluation, and is consistent with Regulatory Position 2.3.2, "Scope of the Probabilistic Risk Assessment for Technical Specification Change Evaluations," of RG 1.177, Revision 1.

3.1.4.3 PRA Modeling

The LAR (Reference 1) states that its SFCP methodology includes a 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 common cause failure 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 NRC-approved NEI 04-10, Revision 1, which would be required by proposed TS 5.5.12, the PRA modeling is sufficient to ensure an acceptable evaluation of risk for the proposed changes in surveillance frequency, and is consistent with Regulatory Position 2.3.3, "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. The adjustment criteria in NEI 04-10, Revision 1, 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 surveillance requirements. In addition, the process described by NEI 04-10, Revision 1, which would be imposed by TS 5.5.12, includes 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 risk analyses and other information will be used.

The NRC staff concludes that through the application of NRC-approved NEI 04-10, Revision 1, the licensee will employ reasonable assumptions with regard to any extensions of STI, and is 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

Proposed TS 5.5.12 would require that changes to frequencies listed in the SFCP be made in accordance with NEI 04-10, Revision 1. Therefore, the licensee would be required to use sensitivity studies to assess the impact of uncertainties from key assumptions of the licensee's 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 RA-Sa-2009 PRA standard. Where the sensitivity analyses identify a potential impact on the proposed change, revised surveillance frequencies are considered, along with any qualitative considerations that may bear on the results of such sensitivity studies. The licensee would also perform necessary monitoring and feedback of SSC performance once the revised surveillance frequencies are implemented. Thus, through the application of NRC-approved NEI 04-10, Revision 1, the licensee will appropriately consider the possible impact of PRA model uncertainty and sensitivity to key assumptions and model limitations, 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.

3.1.4.6 Acceptance Guidelines

In accordance with the proposed TS 5.5.12, under its SFCP the licensee would quantitatively evaluate the change in total risk (including internal and external events contributions) in terms of CDF and LERF using the guidance contained in NRC-approved NEI 04-10, Revision 1. The qualitative evaluation will include both the individual risk impact of a proposed change in surveillance frequency, and the cumulative impact from all individual changes to surveillance frequencies. In accordance with the acceptance criteria in RG 1.174, Revision 3, for very small changes in risk, each individual change to surveillance frequency must show a risk increase

below 1E-6 per year for CDF, and below 1E-7 per year for LERF or the process terminates without permitting the proposed changes. Where quantitative results are unavailable for comparison with the acceptance guidelines, appropriate qualitative analyses are used to demonstrate that the associated risk impact of a proposed change to surveillance frequency is negligible. Otherwise, bounding quantitative analyses are used to demonstrate the risk impact is at least one order of magnitude lower than the acceptance criteria in RG 1.174 for very small changes in risk. In addition to assessing each individual SSC surveillance frequency change, the proposed SFCP would ensure that cumulative impact of all changes result in a risk increase less than 1E-5 per year for CDF, and less than 1E-6 per year for LERF. Further, proposed TS 5.5.12 would ensure that the total CDF and total LERF must be reasonably shown to be less than 1E-4 per year and 1E-5 per year, respectively. The NRC staff finds that these values are consistent with the acceptance criteria of RG 1.174, Revision 3, as referenced by RG 1.177, Revision 1, for changes to surveillance frequencies.

Consistent with the NRC safety evaluation dated September 19, 2007, on NEI 04-10, Revision 1, proposed TS 5.5.12 will require the licensee to calculate the total change in risk (i.e., the cumulative risk) by comparing a baseline model that uses failure probabilities based on surveillance frequencies prior to being changed per the SFCP to a revised model that uses failure probabilities based on the changed surveillance frequencies. The staff further notes that NEI 04-10, Revision 1, includes a provision to exclude the contribution to cumulative risk from individual changes to surveillance frequencies associated with insignificant risk increases (i.e., less than 5E-8 CDF and 5E-9 LERF) once the baseline PRA models are updated to include the effects of the revised surveillance frequencies.

The quantitative acceptance guidance of RG 1.174, Revision 3, is supplemented by qualitative information to evaluate the proposed changes to surveillance frequencies, including industry and plant-specific operating experience, vendor recommendations, and industry standards, or at least bounding, quantitative results of sensitivity studies and SSC performance data and test history. The final acceptability of the proposed change is based on all of these considerations and not solely on the PRA results. Post-implementation performance monitoring and feedback are also required to assure continued reliability of the SSC's. The licensee's application of NEI 04-10 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 Specification Changes," of RG 1.177, Revision 1. Therefore, the NRC staff finds that the licensee's proposed methodology satisfies the fourth key safety principle of RG 1.177, Revision 1, by assuring any increase in risk is small consistent with the intent of the Commission's Safety Goal Policy Statement.

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

The licensee's proposed TS 5.5.12 requires the application of NEI 04-10, Revision 1, in the SFCP. The guidance in NEI 04-10 includes performance monitoring of SSCs whose surveillance frequencies have been revised as part of a feedback process to assure that any change in test frequency has not resulted in degradation of equipment performance and operational safety. The monitoring and feedback includes consideration of monitoring of equipment performance required by the Maintenance Rule (10 CFR 50.65). In the event of degradation of SSC performance, the surveillance frequency will be reassessed in accordance with the methodology, in addition to any corrective actions that may apply as part of the maintenance rule requirements. The performance monitoring and feedback specified in NEI 04-10, Revision 1, is sufficient to assure acceptable SSC performance and is 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 Limitations and Conditions

The NRC staff's SE in response to NEI 04-10, Section 4.0, states that:

> The NRC staff finds that the methodology in NEI 04-10, Revision 1 is acceptable for referencing by licensees proposing to amend their TSs to establish a SFCP provided the following conditions are satisfied:
>
> 1. The licensee submits documentation with regards to PRA technical adequacy consistent with the requirements of RG 1.200, Section 4.2.
>
> 2. When a licensee proposes to use PRA models for which NRC-endorsed standards do not exist, the licensee submits documentation which identifies the quality characteristics of those models, consistent with RG 1.200 Sections 1.2 and 1.3. Otherwise, the licensee identifies and justifies the methods to be applied for assessing the risk contribution for those sources of risk not addressed by PRA models.

Section 3.1.4.1 of this SE discusses the technical adequacy of the licensee's PRA model and finds it to be consistent with NRC-endorsed guidance. As discussed in Section 3.1.4.1 the NRC staff finds the information supplied in the LAR, as supplemented, supports the licensee's proposed PRA and therefore the limitations in the NRC staff's SE related to NEI 04-10 have been met.

3.3 Addition of Surveillance Frequency Control Program to Administrative Controls

The licensee proposed to include the SFCP and specific requirements into the RBS TS 5.5.12, 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.

Based on its review in the sections above, the NRC staff concludes that the SFCP is an acceptable program to list surveillance frequencies and control changes to surveillance frequencies. The staff further finds that proposed TS 5.5.12 includes the necessary program and applicability requirements, that those requirements are consistent with the TSTF-425, Revision 3, and that those requirements will ensure that LCOs are met. Therefore, the NRC staff finds proposed TS 5.5.12 acceptable.

3.4 Deviations from TSTF-425 and Other Changes

3.4.1 Definition of Staggered Test Basis

The definition of STAGGERED TEST BASIS is being retained in the RBS 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). This is an administrative deviation and the NRC staff concludes that the definition should be retained to inform the SRs that use the definition and that remain the TS. Therefore, the staff finds this deviation acceptable.

3.4.2 Variation in TS Surveillance Requirement Numbering

The RBS SRs numbering differs from the corresponding TSTF-425 SRs. The NRC staff finds that the SR numbering variations are editorial and non-substantive deviations from TSTF-425 that are consistent with the TS numbering scheme at RBS. Therefore, the NRC staff concludes that these deviations are acceptable.

3.4.3 Comparison of SR Changes between the RBS TSs and NUREG-1434 TSs

The licensee stated that NUREG-1434 contains SRs that are not in the RBS TSs. The NRC staff reviewed the variations from the STSs in NUREG-1434 and determined that, because the omitted SRs were previously found to be inapplicable to RBS when it converted to the STSs, these deviations are consistent with currently approved RBS TSs. Therefore, the staff finds these variations acceptable.

The licensee stated that plant-specific SRs are not included in TSTF-425. These SRs were added to the RBS TSs per Amendment No. 188 (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 RBS 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 Section 2.2 of the LAR and concludes that relocation of the plant-specific SR frequencies is consistent with TSTF-425, and the plant-specific SRs do not meet any of the exclusions identified in Section 1.0, "Introduction," of the NRC staff's model SE dated July 6, 2009. Therefore, the staff finds these variations acceptable.

The licensee proposed to add the SFCP to TS Section 5.5.12 instead of adding the program to the end of TS Section 5.5, as indicated in the NRC staff's model SE dated July 6, 2009. Additionally, the licensee would remove the word "deleted" currently in TS Section 5.5.12. This change requires formatting changes that move applicable portions of the text as identified in the licensee's markup of the TS pages. The licensee considers the deviations to be administrative deviations from TSTF-425, Revision 3, that do not affect the substantive conclusions in the NRC's model SE dated July 6, 2009. The NRC staff evaluated the deviations and determined

that differences from TSTF-425 are not substantive and do not affect the acceptability of the SFCP. Therefore, the NRC staff finds these deviations to be acceptable.

3.4.4 Control Room Envelope Habitability Program

The licensee proposed to revise TS 5.5.14.d as follows (deleted text in ~~strikeout~~ and added text in *italics*):

> Measurement, at designated locations, of the CRE pressure...by one subsystem of the CRFA [Control Room Fresh Air] System...at a Frequency ~~of 24 months on a STAGGERED TEST BASIS~~ *in accordance with the Surveillance Frequency Control Program*. The results shall be trended and used as part of the ~~24 month assessment of the~~ CRE [control room envelope] boundary *assessment specified in 5.5.14.c (ii)*.

The licensee adopted TSTF-448, "Control Room Habitability," in Amendment No. 154 (Reference 22), which revised the SRs to perform control room envelope unfiltered air leakage testing in accordance with the Control Room Envelope Habitability Program. The licensee designated the Control Room Envelope Habitability Program as TS 5.5.14 and the subject SR as TS 5.5.14.d. The SR revised under TSTF-448 for Standard Technical Specifications (under NUREG-1434) was designated as SR 3.7.3.4. TSTF-425 includes relocation of the frequency for SR 3.7.3.4 to the SFCP. The licensee proposed to adopt the frequency change identified for NUREG-1434 SR 3.7.3.4 for RBS as TS 5.5.14.d.

The NRC staff reviewed the proposed changes and determined that reflecting the relocation of the SR frequency in STS SR 3.7.3.4 in TSTF-425, by modifying RBS TS 5.5.14.d continues to require that the CRE unfiltered air leakage testing specified in SR 5.5.14.d is performed as required by the Control Room Envelope Habitability Program. Also, the frequency currently referenced in TS 5.5.14.d is a periodic frequency that does not meet the exclusion criteria in TSTF-425, and relocation of the frequency is consistent with the intent of TSTF-425, Revision 3. Therefore, the NRC staff finds the proposed changes to TS 5.5.14.d acceptable.

3.4.5 Administrative Control Programs SR Frequencies

The licensee proposed changes to SR frequencies in TS 5.5.7, "Ventilation Filter Testing Program (VFTP)," and TS 5.5.9, "Diesel Fuel Oil Testing Program," related to total particulate concentration of the fuel oil in the storage tanks that are not identified for relocation in TSTF-425, Revision 3 because they are plant-specific TSs. The changes would replace the specific frequency requirements in this TSs with "in accordance with the Surveillance Frequency Control Program." The staff reviewed the licensee's proposed changes to relocate 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 relocation of these frequencies is consistent with the intent of this TSTF. Therefore, the NRC staff finds that relocation of these plant-specific TS SR frequencies to the SFCP is acceptable.

3.4.6 Combined Unit Power Supplies SR

The licensee proposed to revise SR 3.8.1.8 to correct a formatting error. Currently, SR 3.8.1.8.a and SR 3.8.1.8.b are listed within the same SR row, each with a frequency specified as 24 months. The proposed amendment would modify SR 3.8.1.8 to combine the

two SRs into a single SR with two sub-activities and one frequency (i.e., in accordance with the SFCP). The licensee proposed the following changes to SR 3.8.1.8:

> Verify, for required unit power supplies:
>
> a. Manual transfer of unit power supply from the normal offsite circuit to required alternate offsite circuit; and
>
> b. Automatic transfer of bus E22-S004 through NNS-SWG1A or NNS-SWG1B from the 22 kV onsite circuit to required offsite circuit.

The NRC staff reviewed the proposed changes to SR 3.8.1.8 and determined that combining SR 3.8.1.8.a and b. to share one frequency is consistent with the current SR and will ensure that the 10 CFR 50.36(c)(3) requirement that the TSs include requirements relating to test, calibration or inspection to assure that the necessary quality of systems and components is maintained, that the facility operation will be within safety limits and the limiting conditions for operation will be met. . Further, this change is consistent with the formatting of similar SRs in the RBS TS (e.g., SRs 3.8.1.7, 3.8.1.11, and 3.8.1.12) and would improve the readability of the TSs by using consistent formatting. Therefore, the NRC staff finds these changes acceptable.

3.4.7 Repagination of TS Pages

Due to the relocation and modification of SR frequencies, there were multiple SRs that moved to the next page. The licensee proposed the following changes:

- Add pages 3.3-6a, 3.3-52a, 3.5-5a, 5.0-16b;
- Replace current page 3.8-16 with new page 3.8-16 to accommodate the SRs that move to the next page;
- Delete from current page 3.8-16 the text, "Table 3.8.1-1 has been deleted";
- Delete rows for SRs 3.6.4.1.7 and 3.8.3.6 because the associated SRs were deleted; and
- Minor formatting corrections.

The NRC staff reviewed the proposed changes and determined that the formatting and pagination changes identified in the markup of the TS pages are minor deviations from TSTF-425, are consistent with existing RBS TSs, and do not affect the acceptability of the SFCP and relocation of SR frequencies as evaluated in the NRC's model SE dated July 6, 2009. Therefore, the NRC staff finds the proposed changes acceptable.

3.5 Summary and Conclusions

The NRC staff reviewed the licensee's proposed relocation of certain surveillance frequencies to a licensee-controlled document, proposal to control changes to surveillance frequencies in accordance with a new program, the SFCP, which is required by TS 5.5.12. The NRC staff confirmed that this amendment adheres to the TSTF-425 exclusion criteria in that it does not relocate surveillance frequencies that are specified by other approved programs, are purely

event-driven, are event-driven but have a time component for performing the surveillance on a one-time basis once the event occurs, or are related to specific conditions.

The proposed adoption of TS changes consistent with TSTF-425, Revision 3, and the risk-informed methodology of NRC-approved NEI 04-10, Revision 1, as referenced in TS 5.5.12 of the Administrative Controls section of the RBS TSs, satisfies the key principles of risk-informed decisionmaking as delineated in RG 1.177, Revision 1 and RG 1.174, Revision 3 in that:

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

The proposed adoption of TS changes in TS Sections 3 and 5 are consistent with TSTF-425, Revision 3, and the use of NEI 04-01, as required by proposed TS 5.5.12, also meets the limitations and conditions in the NRC staff's SE on NEI 04-10.

Section 50.36(c) of 10 CFR specifies the categories that must be included in the TSs. Section 50.36(c)(3) states,

> Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

Based on the above evaluation, the NRC staff concludes that, the proposed relocation of surveillance frequencies to a licensee-controlled document, the SFCP, which is controlled by the TS 5.5.12 requirement that the program ensure surveillance frequencies assure that LCOs are met and any changes to those frequencies are appropriate under NEI 04-10, the licensee continues to meet the requirements in 10 CFR 50.36(c)(3).

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana State official was notified of the proposed issuance of the amendment on March 6, 2019. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This 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 involves changes to SRs. 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 May 22, 2018 (83 FR 23733), and there has been no public comment on such finding. The amendment also changes a recordkeeping, reporting or administrative procedures or requirements and makes editorial or other minor corrective changes. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and (c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this 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. Maguire, W. F., 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), River Bend Station, Unit 1, Docket No. 50-458, License No. NPF-47," dated February 28, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18067A115).

2. Schenk, T., 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), River Bend Station, Unit 1, Docket No. 50-458, License No. NPF-47," dated July 10, 2018 (ADAMS Accession No. ML18191B010).

3. Schenk, T., 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), River Bend Station, Unit 1, Docket No. 50-458, License No. NPF-47," dated July 24, 2018 (ADAMS Accession No. ML18205A520).

4. Maguire, W. F., Entergy Operations, Inc., letter to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information for License Amendment Request, Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program (TSTF-425), River Bend Station, Unit 1, NRC Docket No. 50-458, Facility Operating License No. NPF-47," dated December 17 2018 (ADAMS Accession No. ML18351A375).

5. Reynolds, J. W., 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), River Bend Station, Unit 1,

NRC Docket No. 50-458, Facility Operating License No. NPF-47," dated December 20, 2018 (ADAMS Accession No. ML19002A115).

6. 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).

7. 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).

8. 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).

9. 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).

10. 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).

11. 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).

12. 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).

13. 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).

14. 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).

15. 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 No. ML12102A195 and ML12102A196, respectively).

16. U.S. Nuclear Regulatory Commission, Regulatory Issue Summary (RIS) 2007-06, "Regulatory Guide 1.200 Implementation," dated March 22, 2007 (ADAMS Accession No. ML070650428).

17. American Society of Mechanical Engineers and 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

18. Nuclear Energy Institute, "Probabilistic Risk Assessment (PRA) Peer Review Process Guidance," NEI 00-02, Revision 1, dated May 2006 (ADAMS Accession No. ML061510619).

19. 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).

20. U.S. Nuclear Regulatory Commission, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decisionmaking," NUREG-1855, Revision 1, dated March 2017 (ADAMS Accession No. ML17062A466).

21. Wang, A. B., U.S. Nuclear Regulatory Commission, letter to Vice President, Operations, Entergy Operations, Inc., "River Bend Station, Unit 1 – Issuance of Amendment Re: Adoption of Technical Specification Task Force Traveler TSTF-523, "Generic Letter 2008-01, Managing Gas Accumulation" (TAC No. MF4782), dated September 21, 2015 (ADAMS Accession No. ML15195A061)

22. Kalyanam N., for Vaidya, B., U.S. nuclear Regulatory Commission, letter to Mr. Joseph E. Venable, Operations, Entergy Operations, Inc., "River Bend Station, Unit 1 – Issuance of Amendment Re: Adoption of Technical Specifications Task Force (TSTF)-448, Revision 3, "Control Room Envelope Habitability, "Using Consolidated Line Item Improvement Process (TAC No. MD6108) dated November 16, 2007 (ADAMS Accession No. ML072490080)

Principal Contributors: Michael Levine
Tarico Sweat
Lisa Regner

Date: April 29, 2019

SUBJECT: RIVER BEND STATION, UNIT 1 – ISSUANCE OF AMENDMENT RE: ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER TSTF-425, REVISION 3 (EPID L-2018-LLA-0056) DATED APRIL 29, 2019

DISTRIBUTION:

PUBLIC
PM File Copy
RidsACRS_MailCTR Resource
RidsNrrDeEeob Resource
RidsNrrDeEicb Resource
RidsNrrDeEmib Resource
RidsNrrDmlrMccb Resource
RidsNrrDorlLpl4 Resource
RidsNrrDraApla Resource
RidsNrrDssScpb Resource
RidsNrrDssSrxb Resource
RidsNrrDssStsb Resource
RidsNrrLAPBlechman Resource
RidsNrrPMRiverBend Resource
RidsRgn4MailCenter Resource
RAlvarado, NRR
RBeaton, NRR
MBiro, NRR
GCurran, NRR
AFoli, NRR
PKlein, NRR
MLevine, NRR
TSweat, NRR
ITseng, NRR
MYoder, NRR
LRegner, NRR
EMiller, NRR

ADAMS Accession No. ML19066A008 *SE transmitted by memo **by email

OFFICE	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/LA	NRR/DRA/APLA/BC*	NRR/DSS/STSB/BC**
NAME	LRegner (GMiller for)	PBlechman	MWentzel (A)	VCusumano
DATE	4/29/2019	4/26/2019	1/17/2019	2/27/2019
OFFICE	NRR/DSS/SCPB/BC**	NRR/DSS/SRXB/BC**	NRR/DE/EICB/BC	NRR/DE/EEOB/BC**
NAME	SAnderson	JWhitman	MWaters	DWilliams (A)
DATE	4/5/2019	4/2/2019	4/5/2019	3/29/2019
OFFICE	NRR/DE/EMIB/BC**	NRR/DMLR/MCCB/BC**	OGC NLO	NRR/DORL/LPL4/BC
NAME	SBailey	SBloom	MYoung	RPascarelli
DATE	4/4/2019	3/28/2019	4/23/2019	4/29/2019
OFFICE	NRR/DORL/LPL4/PM			
NAME	MO'Banion (GMiller for)			
DATE	4/29/2019			

OFFICIAL RECORD COPY