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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 235
License No. DPR-33

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated June 12, 1998, as supplemented August 14, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

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

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

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

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

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

November 30, 1998

Mr. John A. Scalice
Chief Nuclear Officer
and Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: ISSUANCE OF AMENDMENTS - BROWNS FERRY NUCLEAR PLANT UNITS 1, 2, AND 3 (TAC NOS. MA2081, MA2082, AND MA2083)

Dear Mr. Scalice:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment Nos. 235, 255 and 215 to Facility Operating License Nos. DPR-33, DPR-52, and DPR-68 for the Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3, respectively. These amendments are in response to your application dated June 12, and August 14, 1998, requesting changes to the technical specifications to accommodate surveillance intervals to be compatible with a 24-month fuel cycle.

A copy of the NRC's Safety Evaluation is enclosed. A Notice of Issuance of Amendment to Facility Operating License will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

L. Raghavan, Senior Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-259, 50-260 and 50-296

Enclosures:
1. Amendment No. 235 to License No. DPR-33
2. Amendment No. 255 to License No. DPR-52
3. Amendment No. 215 to License No. DPR-68
4. Safety Evaluation

cc w/enclosures: See next page

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 Facility Operating License No. DPR-33 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 235 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented before commencing Unit 2's Cycle 11 operation.

FOR THE NUCLEAR REGULATORY COMMISSION

Frederick J. Hebdon

Frederick J. Hebdon, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: November 30, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 235

FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE	INSERT
3.3-73	3.3-73
3.6-46	3.6-46
3.6-50	3.6-50
3.6-54	3.6-54
3.7-7	3.7-7
3.7-11	3.7-11
3.7-15	3.7-15
3.8-11	3.8-11
3.8-12	3.8-12
3.8-13	3.8-13
3.8-24	3.8-24
5.0-14	5.0-14
5.0-15	5.0-15
5.0-16	5.0-16
B 3.3-263	B 3.3-263
B 3.6-106	B 3.6-106
B 3.6-113	B 3.6-113
B 3.6-121	B 3.6-121
B 3.7-16	B 3.7-16
B 3.7-25	B 3.7-25
B 3.7-31	B 3.7-31
B 3.8-33	B 3.8-33
B 3.8-34	B 3.8-34
B 3.8-35	B 3.8-35
B 3.8-37	B 3.8-37
B 3.8-65	B 3.8-65
B 3.8-68	B 3.8-68

SURVEILLANCE REQUIREMENTS

-NOTE-

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

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.8.1.2	Perform CHANNEL CALIBRATION.	12 months
SR 3.3.8.1.3	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	31 days
SR 3.6.4.1.2	Verify each secondary containment access door is closed, except when the access opening is being used for entry and exit, then at least one door shall be closed.	31 days
SR 3.6.4.1.3	Verify two standby gas treatment (SGT) subsystems will draw down the secondary containment to ≥ 0.25 inch of vacuum water gauge in ≤ 120 seconds.	24 months on a STAGGERED TEST BASIS
SR 3.6.4.1.4	Verify two SGT subsystems can maintain ≥ 0.25 inch of vacuum water gauge in the secondary containment at a flow rate ≤ 12,000 cfm.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	Verify the isolation time of each power operated, automatic SCIV is within limits.	92 days
SR 3.6.4.2.2	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating.	31 days
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.	24 months
SR 3.6.4.3.4	Verify the SGT decay heat discharge dampers are in the correct position.	12 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify the average water temperature of UHS is ≤ 95°F.	24 hours
SR 3.7.2.2	-------------------NOTE------------------ Isolation of flow to individual components does not render EECW System inoperable. -- Verify each EECW system manual and power operated valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.2.3	Verify each required EECW pump actuates on an actual or simulated initiation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each CREV subsystem for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.3.2	Perform required CREV filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.3.3	Verify each CREV subsystem actuates on an actual or simulated initiation signal.	24 months
SR 3.7.3.4	Verify each CREV subsystem can maintain a positive pressure of ≥ 0.125 inches water gauge relative to the outdoors during the pressurization mode of operation at a flow rate of ≥ 2700 cfm and ≤ 3300 cfm.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.5	---NOTE--- If performed with the 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: a. Following load rejection, the frequency is ≤ 66.75 Hz; and b. Following load rejection, the steady state voltage recovers to ≥ 3940 V and ≤ 4400 V. c. Following load rejection, the steady state frequency recovers to ≥ 58.8 Hz and ≤ 61.2 Hz.	24 months
SR 3.8.1.6	---NOTE--- All DG starts may be preceded by an engine prelube period followed by a warmup period. --- Verify on an actual or simulated accident signal each DG auto-starts from standby condition.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	-------------------NOTE------------------- Momentary transients outside the load and power factor ranges do not invalidate this test. -- Verify each DG operating at a power factor ≤ 0.9 operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 2680 kW and ≤ 2805 kW; and b. For the remaining hours of the test loaded ≥ 2295 kW and ≤ 2550 kW.	24 months
SR 3.8.1.8	Verify interval between each timed load block is within the allowable values for each individual timer.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. --- 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; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through individual timers, 3. achieves steady state voltage ≥ 3940 V and ≤ 4400 V, 4. achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	24 months
SR 3.8.1.10	For required Unit 3 DGs, the SRs of Unit 3 Technical Specifications are applicable.	In accordance with applicable SRs

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 248 V for each Unit and Shutdown Board battery and ≥ 124 V for each DG battery on float charge.	7 days
SR 3.8.4.2	-------------------NOTE------------------- Performance of SR 3.8.4.5 satisfies this SR. -- Verify each required battery charger charges its respective battery after the battery's 24 month service test.	24 months
SR 3.8.4.3	-------------------NOTE------------------- The modified performance discharge test in SR 3.8.4.4 may be performed in lieu of the service test in SR 3.8.4.3 once per 60 months. -- 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.	24 months

(continued)

5.5 Programs and Manuals (continued)

5.5.7 Ventilation Filter Testing Program (VFTP)

The VFTP shall establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

a. Demonstrate for each of the ESF systems (Standby Gas Treatment (SGT) System and Control Room Emergency Ventilation (CREV) System) that an inplace test of the HEPA filters shows a penetration and system bypass ≤ 1.0% when tested in accordance with ANSI N510-1975 at the system flowrate specified below, ± 10%.

ESF Ventilation System	Flowrate (cfm)
SGT System	9000
CREV System	3000

This testing shall be performed 1) every 24 months, 2) after partial or complete replacement of HEPA filters, 3) after any structural maintenance on the system housing, or 4) following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass ≤ 1.0% when tested in accordance with ANSI N510-1975 at the system flowrate specified below, ± 10%.

ESF Ventilation System	Flowrate (cfm)
SGT System	9000
CREV System	3000

This testing shall be performed 1) every 24 months, 2) after partial or complete replacement of the charcoal adsorber bank, 3) after any structural maintenance on the system housing, or 4) following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, shows a methyl iodide efficiency ≥ 90% when tested in accordance with ASTM D3803-1989.

This testing shall be performed 1) every 24 months, 2) after every 720 hours of system operation, or 3) following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

d. Once every 24 months 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 at the system flowrate specified below, ± 10%:

ESF Ventilation System	Delta P (inches water)	Flowrate (cfm)
SGT System	7	9000
CREV System	6	3000

e. Once every 24 months demonstrate that the heaters for the SGT System dissipate ≥ 40 kW when tested in accordance with ANSI N510-1975.

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained downstream of the offgas recombiners, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

The program shall include:

a. The limits for concentrations of hydrogen downstream of the offgas recombiners 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

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.8.1.3

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel. The system functional testing performed in LCO 3.8.1 and LCO 3.8.2 overlaps this Surveillance to provide complete testing of the assumed safety functions.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR, Figure 8.4-4.
2. FSAR, Section 6.5.
3. FSAR, Section 8.5.4.
4. FSAR, Chapter 14.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.1.3 and SR 3.6.4.1.4

The SGT System exhausts the secondary containment atmosphere to the environment through appropriate treatment equipment. To ensure that all fission products are treated, SR 3.6.4.1.3 verifies that the SGT System will rapidly establish and maintain a pressure in the secondary containment that is less than the lowest postulated pressure external to the secondary containment boundary. This is confirmed by demonstrating that two SGT subsystems will draw down the secondary containment to ≥ 0.25 inches of vacuum water gauge in ≤ 120 seconds. This cannot be accomplished if the secondary containment boundary is not intact. SR 3.6.4.1.4 demonstrates that two SGT subsystems can maintain ≥ 0.25 inches of vacuum water gauge at a stable flow rate ≤ 12,000 cfm. Both of these SRs are performed under neutral (< 5 mph) wind conditions. Therefore, these two tests are used to ensure secondary containment boundary integrity. Since these SRs are secondary containment tests, they need not be performed with each combination of SGT subsystems. The SGT subsystems are tested on a STAGGERED TEST BASIS, however, to ensure that in addition to the requirements of LCO 3.6.4.3, any two SGT subsystems will perform this test. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 5.3.
2. FSAR, Section 14.6.3.
3. FSAR, Section 14.6.4.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

Verifying that the isolation time of each power operated, automatic SCIV is within limits is required to demonstrate OPERABILITY. The isolation time test ensures that the SCIV will isolate in a time period less than or equal to that assumed in the safety analyses. The Frequency of this SR is 92 days.

SR 3.6.4.2.2

Verifying that each automatic SCIV closes on a secondary containment isolation signal is required to prevent leakage of radioactive material from secondary containment following a DBA or other accidents. This SR ensures that each automatic SCIV will actuate to the isolation position on a secondary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation," overlaps this SR to provide complete testing of the safety function. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 14.6.3.
2. FSAR, Section 14.6.4.
3. Technical Requirements Manual.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.3.3

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

SR 3.6.4.3.4

This SR verifies that the SGT decay heat discharge dampers are in the correct position. This ensures that the decay heat removal mode of SGT System operation is available. Operating experience has shown that these components usually pass the Surveillance when performed at the 12 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 41.
2. FSAR, Section 5.3.3.7.
3. FSAR, Section 14.6.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.2.3

This SR verifies that the EECW System pumps will automatically start to provide cooling water to the required safety related equipment during an accident event. This is demonstrated by the use of an actual or simulated initiation signal. This SR includes a functional test of the initiation logic and a functional test and calibration of the EECW pump timers (both normal power and diesel power).

Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, this Frequency is concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Chapter 5.
2. FSAR, Chapter 14.
3. FSAR, Section 10.10.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.3.3

This SR verifies that on an actual or simulated initiation signal, each CREV subsystem starts and operates. This SR includes verification that dampers necessary for proper CREV operation function as required. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.4 and SR 3.3.7.1.6 overlaps this SR to provide complete testing of the safety function.

SR 3.7.3.4

This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to outdoors is periodically tested to verify proper function of the CREV System. During the emergency mode of operation, the CREV System is designed to slightly pressurize the control room $\geq$ 0.125 inches water gauge positive pressure with respect to the outdoors to prevent unfiltered inleakage. The CREV System is designed to maintain this positive pressure at a flow rate of $\geq$ 2700 cfm and $\leq$ 3300 cfm to the control room in the pressurization mode. The Frequency of 24 months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration systems SRs.

REFERENCES

1. FSAR, Section 10.12.
2. FSAR, Chapter 10.
3. FSAR, Chapter 14.
4. FSAR, Section 14.6.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

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

REFERENCES

1. FSAR, Section 10.12.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.5 (continued)

The voltage tolerances specified in this SR are based on the degraded voltage and overvoltage relay settings. The frequency tolerances specified in this SR are derived from Safety Guide 9 (Ref. 3) recommendations for response during load sequence intervals. The voltage and frequency specified are consistent with the design range of the equipment powered by the DG. SR 3.8.1.5.a corresponds to the maximum frequency excursion, while SR 3.8.1.5.b and 3.8.1.5.c are steady state voltage and frequency values to which the system must recover following load rejection. The 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 8).

This SR is modified by a Note. In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, the Note requires that, if synchronized to offsite power, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.

SR 3.8.1.6

This Surveillance demonstrates that the DG automatically starts from the design basis actuation signal (LOCA signal). This test will also verify the start of the Unit 3 DGs aligned to the SGT and CREV Systems on an accident signal from Unit 1. In order to minimize the number of DGs involved in testing, demonstration of automatic starts of the Unit 3 DGs on an accident signal from Unit 1 may be performed in conjunction

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.6 (continued)

with testing to demonstrate automatic starts of the Unit 3 DGs on an accident signal from Unit 3. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

To minimize wear and tear on the DGs, this SR has been modified by a Note which permits DG starts to be preceded by an engine prelube period followed by a warmup period.

SR 3.8.1.7

Demonstration once per 24 months that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours - 22 hours of which is at a load equivalent to the continuous rating of the DG, and 2 hours of which is at a load equivalent to 105 percent to 110 percent of the continuous duty rating of the DG. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, discussed in SR 3.8.1.1, and for gradual loading, discussed in SR 3.8.1.2, are applicable to this SR.

In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience. A load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.7 (continued)

The 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 8).

This Surveillance has been modified by a Note that states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test.

SR 3.8.1.8

Under accident conditions (and loss of offsite power) loads are sequentially connected to the shutdown boards by automatic individual pump timers. The individual pump timers control the permissive and starting signals to motor breakers to prevent overloading of the DGs due to high motor starting currents. This SR is demonstrated by performance of SR 3.3.5.1.5 for the Core Spray and LPCI pump timers, SR 3.7.2.3 for the EECW pump timers, and SR 3.8.1.9.b for the 480 V load shed logic timers. The allowable values for these timers ensure that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. Reference 2 provides a summary of the automatic loading of ESF shutdown boards.

The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 8).

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.9 (continued)

The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 24 months.

This SR is modified by a Note. The reason for the Note is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

SR 3.8.1.10

This Surveillance is provided to direct that the appropriate Surveillances for the required Unit 3 DGs are governed by the Unit 3 Technical Specifications. Performance of the applicable Unit 3 Surveillances will satisfy any Unit 3 requirements, as well as this Unit 1 and 2 Surveillance requirement. The Frequency required by the applicable Unit 3 SR also governs performance of that SR for both Units.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.2 and SR 3.8.4.5 (continued)

SR 3.8.4.2 verifies that the chargers are capable of charging the batteries after their designed duty cycle testing and ensures that the chargers will perform their design function. This SR is modified by a Note that allows the performance of SR 3.8.4.5 in lieu of this Surveillance requirement. SR 3.8.4.5 verifies that the chargers are capable of charging the batteries after each discharge test and ensures that the chargers are capable of performing at maximum output. SR 3.8.4.2 is performed at the same frequency as the 24 month service test (SR 3.8.4.3), while SR 3.8.4.5 is performed following the 60 month battery discharge test (SR 3.8.4.4).

SR 3.8.4.5 is modified by a Note. The Note is added to this SR to acknowledge that credit may be taken for unplanned events that satisfy the Surveillance.

SR 3.8.4.3

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length corresponds to the design duty cycle requirements as specified in Reference 4.

The Frequency of 24 months is consistent with the plant conditions required to perform the Surveillance, plus other supporting Surveillance Requirements.

(continued)

BASES (continued)

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6.
3. IEEE Standard 308.
4. FSAR, Sections 8.5 and 8.6.
5. FSAR, Chapters 6 and 14.
6. Regulatory Guide 1.93.
7. IEEE Standard 450-1995.
8. Regulatory Guide 1.32, February 1977.
9. Deleted.
10. IEEE Standard 485, 1983.
11. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 255
License No. DPR-52

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated June 12, 1998, as supplemented August 14, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

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

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

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

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

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-52 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 255, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented before commencing Cycle 11 operation.

FOR THE NUCLEAR REGULATORY COMMISSION

Frederick J. Hebdon

Frederick J. Hebdon, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: November 30, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 255

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE	INSERT
3.1-25	3.1-25
3.1-26	3.1-26
3.1-29	3.1-29
3.3-6	3.3-6
3.3-19	3.3-19
3.3-20	3.3-20
3.3-23	3.3-23
3.3-26	3.3-26
3.3-29	3.3-29
3.3-32	3.3-32
3.3-35	3.3-35
3.3-42	3.3-42
3.3-51	3.3-51
3.3-58	3.3-58
3.3-64	3.3-64
3.3-69	3.3-69
3.3-74	3.3-74
3.3-78	3.3-78
3.4-8	3.4-8
3.4-14	3.4-14
3.5-6	3.5-6
3.5-7	3.5-7
3.5-11	3.5-11
3.5-13	3.5-13
3.5-14	3.5-14
3.6-2	3.6-2
3.6-16	3.6-16
3.6-21	3.6-21
3.6-23	3.6-23
3.6-46	3.6-46
3.6-50	3.6-50
3.6-54	3.6-54
3.7-8	3.7-8
3.7-12	3.7-12
3.7-16	3.7-16
3.7-18	3.7-18
3.8-11	3.8-11
3.8-12	3.8-12
3.8-13	3.8-13
3.8-24	3.8-24
5.0-14	5.0-14
5.0-15	5.0-15
5.0-16	5.0-16
B 3.1-54	B 3.1-54
B 3.1-55	B 3.1-55
B 3.1-62	B 3.1-62
B 3.3-42	B 3.3-42
B 3.3-43	B 3.3-43

Unit 2 (continued)

B 3.3-44	B 3.3-44
B 3.3-45	B 3.3-45
B 3.3-70	B 3.3-70
B 3.3-71	B 3.3-71
B 3.3-72	B 3.3-72
B 3.3-73	B 3.3-73
B 3.3-82	B 3.3-82
B 3.3-83	B 3.3-83
B 3.3-97	B 3.3-97
B 3.3-103	B 3.3-103
B 3.3-104	B 3.3-104
B 3.3-118	B 3.3-118
B 3.3-119	B 3.3-119
B 3.3-129	B 3.3-129
B 3.3-130	B 3.3-130
B 3.3-177	B 3.3-177
B 3.3-188	B 3.3-188
B 3.3-189	B 3.3-189
B 3.3-224	B 3.3-224
B 3.3-239	B 3.3-239
B 3.3-255	B 3.3-255
B 3.3-266	B 3.3-266
B 3.3-277	B 3.3-277
B 3.4-22	B 3.4-22
B 3.4-36	B 3.4-36
B 3.5-17	B 3.5-17
B 3.5-18	B 3.5-18
B 3.5-19	B 3.5-19
B 3.5-21	B 3.5-21
B 3.5-36	B 3.5-36
B 3.5-37	B 3.5-37
B 3.6-6	B 3.6-6
B 3.6-34	B 3.6-34
B 3.6-35	B 3.6-35
B 3.6-48	B 3.6-48
B 3.6-56	B 3.6-56
B 3.6-106	B 3.6-106
B 3.6-113	B 3.6-113
B 3.6-121	B 3.6-121
B 3.7-16	B 3.7-16
B 3.7-25	B 3.7-25
B 3.7-31	B 3.7-31
B 3.7-35	B 3.7-35
B 3.7-36	B 3.7-36
B 3.8-33	B 3.8-33
B 3.8-34	B 3.8-34
B 3.8-35	B 3.8-35
B 3.8-37	B 3.8-37
B 3.8-65	B 3.8-65
B 3.8-68	B 3.8-68

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.5	Verify the SLC conditions satisfy the following equation: $$\frac{(\ C\ )(\ Q\ )(\ E\ )}{(13\ \text{wt. \%})(86\ \text{gpm})(19.8\ \text{atom\%})} \geq 1$$ where, C = sodium pentaborate solution concentration (weight percent) Q = pump flow rate (gpm) E = Boron-10 enrichment (atom percent Boron-10)	31 days AND Once within 24 hours after water or boron is added to the solution
SR 3.1.7.6	Verify each pump develops a flow rate ≥ 39 gpm at a discharge pressure ≥ 1325 psig.	24 months
SR 3.1.7.7	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	24 months on a STAGGERED TEST BASIS
SR 3.1.7.8	Verify all piping between storage tank and pump suction is unblocked.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.9	Verify sodium pentaborate enrichment is within the limits established by SR 3.1.7.5 by calculating within 24 hours and verifying by analysis within 30 days.	24 months AND After addition to SLC tank
SR 3.1.7.10	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.	31 days

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.	 31 days
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	92 days
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 60 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.10	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.1.1.11	(Deleted)	
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.1.1.13	-----NOTE----- Neutron detectors are excluded. ---------- Perform CHANNEL CALIBRATION.	24 months
SR 3.3.1.1.14	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months
SR 3.3.1.1.15	Verify Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 30% RTP.	24 months
SR 3.3.1.1.16	-----NOTE----- For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	184 days

SURVEILLANCE REQUIREMENTS

-NOTES-

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

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

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1.1	Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.2.1.2	-NOTE- Not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2. Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.3	-NOTE- Not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.4	-NOTE- Neutron detectors are excluded. Perform CHANNEL CALIBRATION.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.5	Verify the RWM is not bypassed when THERMAL POWER is ≤ 10% RTP.	24 months
SR 3.3.2.1.6	------NOTE------ Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. ------------ Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.2.1.7	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM
SR 3.3.2.1.8	------NOTE------ Neutron detectors are excluded. ------------ Verify the RBM: a. Low Power Range -- Upscale Function is not bypassed when THERMAL POWER is ≥ 27% and ≤ 62% RTP. b. Intermediate Power Range -- Upscale Function is not bypassed when THERMAL POWER is > 62% and ≤ 82% RTP. c. High Power Range -- Upscale Function is not bypassed when THERMAL POWER is > 82% RTP.	24 months

SURVEILLANCE REQUIREMENTS

NOTE

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.2.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.2.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 586 inches above vessel zero.	24 months
SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK for each required PAM instrumentation channel.	31 days
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION of the Drywell and Torus H_2 analyzer Functions.	92 days
SR 3.3.3.1.3	Perform CHANNEL CALIBRATION of the Reactor Pressure Functions.	184 days
SR 3.3.3.1.4	Perform CHANNEL CALIBRATION for each required PAM instrumentation channel except for the Reactor Pressure, and the Drywell and Torus H_2 analyzer Functions.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Verify each required control circuit and transfer switch is capable of performing the intended function.	24 months
SR 3.3.3.2.2	Perform CHANNEL CALIBRATION for the Suppression Pool Water Level Function.	184 days
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel except for the Suppression Pool Water Level Function.	24 months

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.	92 days
SR 3.3.4.1.2	Verify TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 30% RTP.	24 months
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: TSV - Closure: ≤ 10% closed; and TCV Fast Closure, Trip Oil Pressure - Low: ≥ 550 psig.	24 months
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months

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 of the Reactor Vessel Water Level - Low Low, Level 2 Function.	24 hours
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level - Low Low, Level 2: ≥ 471.52 inches above vessel zero; and b. Reactor Steam Dome Pressure - High: ≤ 1175 psig.	24 months
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months

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 and 3.f; and (b) for up to 6 hours for Functions other than 3.c and 3.f provided the associated Function or the redundant Function maintains ECCS initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.5.1.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

NOTES

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

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

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

SURVEILLANCE REQUIREMENTS

NOTES

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	122 days
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

NOTES

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

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

3. For Functions 3 and 4, when a channel is placed in an inoperable status solely for performance of a CHANNEL CALIBRATION or maintenance, entry into associated Conditions and Required Actions may be delayed for up to 24 hours provided the downscale trip of the inoperable channel is placed in the tripped condition.

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.7.1-1 to determine which SRs apply for each CREV 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 CREV initiation capability.

3. For Functions 3 and 4, when a channel is placed in an inoperable status solely for the performance of a CHANNEL CALIBRATION or maintenance, entry into the associated Conditions and Required Actions may be delayed for up to 24 hours provided the downscale trip of the inoperable channel is placed in the trip condition.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	184 days
SR 3.3.7.1.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.7.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.8.1.2	Perform CHANNEL CALIBRATION.	12 months
SR 3.3.8.1.3	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 108.5 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 56 Hz, with time delay set to ≤ 4 seconds.	184 days
SR 3.3.8.2.3	Perform a system functional test.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify the safety function lift settings of the required 12 S/RVs are within ± 3% of the setpoint as follows: Number of S/RVs — Setpoint (psig) 4 — 1135 4 — 1145 5 — 1155 Following testing, lift settings shall be within ± 1%.	In accordance with the Inservice Testing Program
SR 3.4.3.2	-----------------------NOTE----------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify each required S/RV opens when manually actuated.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Perform a CHANNEL CHECK of required primary containment atmospheric monitoring system instrumentation.	12 hours
SR 3.4.5.2	Perform a CHANNEL FUNCTIONAL TEST of required primary containment atmospheric monitoring system instrumentation.	31 days
SR 3.4.5.3	Perform a CHANNEL CALIBRATION of required drywell sump flow integrator instrumentation.	184 days
SR 3.4.5.4	Perform a CHANNEL CALIBRATION of required leakage detection system instrumentation.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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, with reactor pressure ≤ 1040 and ≥ 950 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.	92 days
SR 3.5.1.8	---NOTE--- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---	
	Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.	24 months
SR 3.5.1.9	---NOTE--- Vessel injection/spray may be excluded. ---	
	Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.10	---NOTE--- Valve actuation may be excluded. ---	
	Verify the ADS actuates on an actual or simulated automatic initiation signal.	24 months
SR 3.5.1.11	---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 opens when manually actuated.	24 months
SR 3.5.1.12	Verify automatic transfer of the power supply from the normal source to the alternate source for each LPCI subsystem inboard injection valve and each recirculation pump discharge valve.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure. SYSTEM / FLOW RATE / NO. OF PUMPS / SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF CS / ≥ 6250 gpm / 2 / ≥ 105 psid SYSTEM / FLOW RATE / NO. OF PUMPS / INDICATED SYSTEM PRESSURE LPCI / ≥ 9,000 gpm / 1 / ≥ 125 psig	In accordance with the Inservice Testing Program
SR 3.5.2.5	-----NOTE----- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months

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

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.3.3	-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ------------------------------ Verify, with reactor pressure ≤ 1040 psig and ≥ 950 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.	92 days
SR 3.5.3.4	-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ------------------------------ Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.	24 months

(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.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.1	Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2	Verify drywell to suppression chamber differential pressure does not decrease at a rate > 0.25 inch water gauge per minute over a 10 minute period at an initial differential pressure of 1 psid.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to the isolation position on a simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is ≤ 11.5 scfh when tested at ≥ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Verify combined leakage through water tested lines that penetrate primary containment are within the limits specified in the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.5.1	-------------------NOTES------------------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. --- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.5.2	Perform a functional test of each vacuum breaker.	92 days
SR 3.6.1.5.3	Verify the opening setpoint of each vacuum breaker is ≤ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.1.6.1	-------------------NOTES------------------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. One drywell suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights. -- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	In accordance with the Inservice Testing Program
SR 3.6.1.6.3	Verify the differential pressure required to open each vacuum breaker is ≤ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	31 days
SR 3.6.4.1.2	Verify each secondary containment access door is closed, except when the access opening is being used for entry and exit, then at least one door shall be closed.	31 days
SR 3.6.4.1.3	Verify two standby gas treatment (SGT) subsystems will draw down the secondary containment to ≥ 0.25 inch of vacuum water gauge in ≤ 120 seconds.	24 months on a STAGGERED TEST BASIS
SR 3.6.4.1.4	Verify two SGT subsystems can maintain ≥ 0.25 inch of vacuum water gauge in the secondary containment at a flow rate ≤ 12,000 cfm.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	Verify the isolation time of each power operated, automatic SCIV is within limits.	92 days
SR 3.6.4.2.2	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating.	31 days
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.	24 months
SR 3.6.4.3.4	Verify the SGT decay heat discharge dampers are in the correct position.	12 months

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.2.1	------------------NOTE------------------ Refer to SR 3.7.1.2 for additional UHS requirements. -- Verify the average water temperature of UHS is ≤ 95°F.	 24 hours
SR 3.7.2.2	------------------NOTE------------------ Isolation of flow to individual components does not render EECW System inoperable. -- Verify each EECW system manual and power operated valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	 31 days
SR 3.7.2.3	Verify each required EECW pump actuates on an actual or simulated initiation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each CREV subsystem for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.3.2	Perform required CREV filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.3.3	Verify each CREV subsystem actuates on an actual or simulated initiation signal.	24 months
SR 3.7.3.4	Verify each CREV subsystem can maintain a positive pressure of ≥ 0.125 inches water gauge relative to the outdoors during the pressurization mode of operation at a flow rate of ≥ 2700 cfm and ≤ 3300 cfm.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify one complete cycle of each main turbine bypass valve.	31 days
SR 3.7.5.2	Perform a system functional test.	24 months
SR 3.7.5.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.5	-------------------NOTE------------------- If performed with the 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: a. Following load rejection, the frequency is ≤ 66.75 Hz; and b. Following load rejection, the steady state voltage recovers to ≥ 3940 V and ≤ 4400 V. c. Following load rejection, the steady state frequency recovers to ≥ 58.8 Hz and ≤ 61.2 Hz.	24 months
SR 3.8.1.6	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period followed by a warmup period. --	
	Verify on an actual or simulated accident signal each DG auto-starts from standby condition.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	-----NOTE----- Momentary transients outside the load and power factor ranges do not invalidate this test. ----- Verify each DG operating at a power factor ≤ 0.9 operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 2680 kW and ≤ 2805 kW; and b. For the remaining hours of the test loaded ≥ 2295 kW and ≤ 2550 kW.	24 months
SR 3.8.1.8	Verify interval between each timed load block is within the allowable values for each individual timer.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	-------------------NOTE------------------ All DG starts may be preceded by an engine prelube period. --- 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; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through individual timers, 3. achieves steady state voltage ≥ 3940 V and ≤ 4400 V, 4. achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	24 months
SR 3.8.1.10	For required Unit 3 DGs, the SRs of Unit 3 Technical Specifications are applicable.	In accordance with applicable SRs

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 248 V for each Unit and Shutdown Board battery and ≥ 124 V for each DG battery on float charge.	7 days
SR 3.8.4.2	-------------------NOTE------------------- Performance of SR 3.8.4.5 satisfies this SR. --- Verify each required battery charger charges its respective battery after the battery's 24 month service test.	24 months
SR 3.8.4.3	-------------------NOTE------------------- The modified performance discharge test in SR 3.8.4.4 may be performed in lieu of the service test in SR 3.8.4.3 once per 60 months. --- 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.	24 months

(continued)

5.5 Programs and Manuals (continued)

5.5.7 Ventilation Filter Testing Program (VFTP)

The VFTP shall establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

a. Demonstrate for each of the ESF systems (Standby Gas Treatment (SGT) System and Control Room Emergency Ventilation (CREV) System) that an inplace test of the HEPA filters shows a penetration and system bypass ≤ 1.0% when tested in accordance with ANSI N510-1975 at the system flowrate specified below, ± 10%.

ESF Ventilation System	Flowrate (cfm)
SGT System	9000
CREV System	3000

This testing shall be performed 1) every 24 months, 2) after partial or complete replacement of HEPA filters, 3) after any structural maintenance on the system housing, or 4) following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass ≤ 1.0% when tested in accordance with ANSI N510-1975 at the system flowrate specified below, ± 10%.

ESF Ventilation System	Flowrate (cfm)
SGT System	9000
CREV System	3000

This testing shall be performed 1) every 24 months, 2) after partial or complete replacement of the charcoal adsorber bank, 3) after any structural maintenance on the system housing, or 4) following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, shows a methyl iodide efficiency ≥ 90% when tested in accordance with ASTM D3803-1989.

This testing shall be performed 1) every 24 months, 2) after every 720 hours of system operation, or 3) following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

d. Once every 24 months 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 at the system flowrate specified below, ± 10%:

ESF Ventilation System	Delta P (inches water)	Flowrate (cfm)
SGT System	7	9000
CREV System	6	3000

e. Once every 24 months demonstrate that the heaters for the SGT System dissipate ≥ 40 kW when tested in accordance with ANSI N510-1975.

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained downstream of the offgas recombiners, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

The program shall include:

a. The limits for concentrations of hydrogen downstream of the offgas recombiners 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

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.7.6

Demonstrating that each SLC System pump develops a flow rate ≥ 39 gpm at a discharge pressure ≥ 1325 psig ensures that pump performance has not degraded during the fuel cycle. This minimum pump flow rate requirement ensures that, when combined with the sodium pentaborate solution concentration and enrichment requirements, the rate of negative reactivity insertion from the SLC System will adequately compensate for the positive reactivity effects encountered during power reduction, cooldown of the moderator, and xenon decay. This test confirms one point on the pump design curve and is indicative of overall performance. The 24 month Frequency is acceptable since inservice testing of the pumps, performed every 92 days, will detect any adverse trends in pump performance.

SR 3.1.7.7 and SR 3.1.7.8

These Surveillances ensure that there is a functioning flow path from the boron solution storage tank to the RPV, including the firing of an explosive valve. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of that batch successfully fired. Additionally, replacement charges shall be selected such that the age of charge in service shall not exceed five years from the manufacturer's assembly date. The pump and explosive valve tested should be alternated such that both complete flow paths are tested every 48 months at alternating 24 month intervals.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.7.7 and SR 3.1.7.8 (continued)

The Surveillance may be performed in separate steps to prevent injecting boron into the RPV. An acceptable method for verifying flow from the pump to the RPV is to pump demineralized water from a test tank through one SLC subsystem and into the RPV. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Demonstrating that all piping between the boron solution storage tank and the suction inlet to the injection pumps is unblocked ensures that there is a functioning flow path for injecting the sodium pentaborate solution. An acceptable method for verifying that the suction piping is unblocked is to pump from the storage tank to the storage tank. The 24 month Frequency is acceptable since there is a low probability that the subject piping will be blocked due to precipitation of the boron from solution in the piping or by other means.

SR 3.1.7.9

The enriched sodium pentaborate solution is made by combining stoichiometric quantities of borax and boric acid in demineralized water. Isotopic tests on these chemicals to verify the actual B-10 enrichment must be performed at least every 24 months and after addition of boron to the SLC tank in order to ensure that the proper B-10 atom percentage is being used and SR 3.1.7.5 will be met. The sodium pentaborate enrichment must be calculated within 24 hours and verified by analysis within 30 days.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.8.3 (continued)

bounding analysis for release of reactor coolant outside containment (Ref. 2). Similarly, after receipt of a simulated or actual scram reset signal, the opening of the SDV vent and drain valves is verified. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1 and the scram time testing of control rods in LCO 3.1.3 overlap this Surveillance to provide complete testing of the assumed safety function. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 3.4.5.3.1.
2. FSAR, Section 14.6.5.
3. 10 CFR 100.
4. FSAR, Section 6.5.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.8, SR 3.3.1.1.12 and SR 3.3.1.1.16 (continued)

The 24 month Frequency of SR 3.3.1.1.12 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

SR 3.3.1.1.9, SR 3.3.1.1.10 and SR 3.3.1.1.13

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. For the APRM Simulated Thermal Power - High Function, SR 3.3.1.1.13 also includes calibrating the associated recirculation loop flow channel. For MSIV - Closure, SDV Water Level - High (Float Switch), and TSV - Closure Functions, SR 3.3.1.1.13 includes physical inspection and actuation of the switches.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.9, SR 3.3.1.1.10 and SR 3.3.1.1.13 (continued)

A Note to SR 3.3.1.1.9 and SR 3.3.1.1.13 states that neutron detectors are excluded from CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the 7 day calorimetric calibration (SR 3.3.1.1.2) and the 1000 MWD/T LPRM calibration against the TIPs (SR 3.3.1.1.7). A second Note for SR 3.3.1.1.9 is provided that requires the IRM SRs to be performed within 12 hours of entering MODE 2 from MODE 1. Testing of the MODE 2 IRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads, or movable links. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

The Frequency of SR 3.3.1.1.9 is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.1.1.10 is based upon the assumption of a 184 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.1.1.13 is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

[illegible]

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.11

(Deleted)

SR 3.3.1.1.14

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The functional testing of control rods (LCO 3.1.3), and SDV vent and drain valves (LCO 3.1.8), overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

The LOGIC SYSTEM FUNCTIONAL TEST for APRM Function 2.e simulates APRM trip conditions at the 2-out-of-4 voter channel inputs to check all combinations of two tripped inputs to the 2-out-of-4 logic in the voter channels and APRM related redundant RPS relays.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.15

This SR ensures that scrams initiated from the Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ 30% RTP. This involves calibration of the bypass channels (PIS-1-81A, PIS-1-81B, PIS-1-91A, and PIS-1-91B). Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint.

If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 30% RTP, either due to open main turbine bypass valve(s) or other reasons), then the affected Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition (Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are enabled), this SR is met and the channel is considered OPERABLE.

The Frequency of 24 months is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.2 and SR 3.3.2.1.3 (continued)

any control rod is withdrawn at ≤ 10% RTP in MODE 2. As noted, SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is reduced to ≤ 10% RTP in MODE 1. This allows entry into MODE 2 for SR 3.3.2.1.2, and THERMAL POWER reduction to ≤ 10% RTP for SR 3.3.2.1.3, to perform the required Surveillance if the 92 day Frequency is not met per SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs. The Frequencies are based on reliability analysis (Ref. 8).

SR 3.3.2.1.4

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

As noted, neutron detectors are excluded from the CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.7.

The Frequency is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.1.5

The RWM is automatically bypassed when power is above a specified value. The power level is determined from feedwater flow and steam flow signals. The automatic bypass setpoint must be verified periodically to be > 10% RTP. If the RWM low power setpoint is nonconservative, then the RWM is considered inoperable. Alternately, the low power setpoint channel can be placed in the conservative condition (nonbypass). If placed in the nonbypassed condition, the SR is met and the RWM is not considered inoperable. The Frequency is based on the trip setpoint methodology utilized for the low power setpoint channel.

SR 3.3.2.1.6

A CHANNEL FUNCTIONAL TEST is performed for the Reactor Mode Switch - Shutdown Position Function to ensure that the entire channel will perform the intended function. The CHANNEL FUNCTIONAL TEST for the Reactor Mode Switch - Shutdown Position Function is performed by attempting to withdraw any control rod with the reactor mode switch in the shutdown position and verifying a control rod block occurs.

As noted in the SR, the Surveillance is not required to be performed until 1 hour after the reactor mode switch is in the shutdown position, since testing of this interlock with the reactor mode switch in any other position cannot be performed without using jumpers, lifted leads, or movable links. This allows entry into MODES 3 and 4 if the 24 month Frequency is not met per SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.6 (continued)

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

SR 3.3.2.1.7

The RWM will only enforce the proper control rod sequence if the rod sequence is properly input into the RWM computer. This SR ensures that the proper sequence is loaded into the RWM so that it can perform its intended function. The Surveillance is performed once prior to declaring RWM OPERABLE following loading of sequence into RWM, since this is when rod sequence input errors are possible.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.1.8

The RBM setpoints are automatically varied as a function of power. Three Allowable Values are specified in Table 3.3.2.1-1 and the COLR, each within a specific power range. The powers at which the control rod block Allowable Values automatically change are based on the APRM signal's input to each RBM channel. Below the minimum power setpoint, the RBM is automatically bypassed. These power Allowable Values must be verified periodically to be less than or equal to the specified values. If any power range setpoint is nonconservative, then the affected RBM channel is considered inoperable. Alternatively, the power range channel can be placed in the conservative condition (i.e., enabling the proper RBM setpoint). If placed in this condition, the SR is met and the RBM channel is not considered inoperable. As noted, neutron detectors are excluded from the Surveillance because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.7. The 24 month Frequency is based on the actual trip setpoint methodology utilized for these channels.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on reliability analysis (Ref. 2).

SR 3.3.2.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the feedwater and main turbine valves is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a valve is incapable of operating, the associated instrumentation would also be inoperable. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR, Section 14.5.7.
2. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.1.2, SR 3.3.3.1.3, and SR 3.3.3.1.4

A CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies the channel responds to measured parameter with the necessary range and accuracy. For the PCIV position function, the CHANNEL CALIBRATION consists of verifying the remote indications conform to actual valve positions. For the drywell and torus analyzer function, the CHANNEL CALIBRATION is performed using standard gas samples containing a nominal eight-volume percent hydrogen balance nitrogen.

The 92 day Frequency for CHANNEL CALIBRATION of the Drywell and Torus Hydrogen Analyzer is based on operating experience and vendor recommendations. The 184 day frequency for CHANNEL CALIBRATION of the Reactor Pressure Indication is based on plant specific analysis. The 24 month Frequency for CHANNEL CALIBRATION of all other PAM instrumentation in Table 3.3.3.1-1 is based on operating experience and consistency with BFN refueling cycles.

(continued)

BASES

ACTIONS (continued)

B.1

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

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2.1

SR 3.3.3.2.1 verifies each required Backup Control System transfer switch and control circuit performs the intended function. This verification is performed from the backup control panel and locally, as appropriate. Operation of the equipment from the backup control panel is not necessary. The Surveillance can be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the plant can be placed and maintained in MODE 3 from the backup control panel and the local control stations. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.2.2 and SR 3.3.3.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. The test verifies the channel responds to measured parameter values with the necessary range and accuracy.

The Frequency of SR 3.3.3.2.2 is based upon the assumption of a 184 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The 24 month Frequency of SR 3.3.3.2.3 is based upon operating experience and consistency with the refueling cycle.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 19.
2. FSAR Section 7.18.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.2

This SR ensures that an EOC-RPT initiated from the TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ 30% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 30% RTP, either due to open main turbine bypass valves or other reasons), the affected TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition, this SR is met with the channel considered OPERABLE.

The Frequency of 24 months is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.4.1.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. The Frequency is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers is included as a part of this test, overlapping the LOGIC SYSTEM FUNCTIONAL TEST, to provide complete testing of the associated safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel(s) would also be inoperable.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR, Figure 7.9-2 (EOC-RPT logic diagram).
2. FSAR, Section 7.9.4.5.
3. FSAR, Sections 14.5.1.1 and 14.5.1.3.
4. FSAR, Section 4.3.5.
5. GENE-770-06-1, "Bases For Changes To Surveillance Test Intervals And Allowed Out-Of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.1 (continued)

The Frequency is based upon operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

SR 3.3.4.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of Reference 2.

SR 3.3.4.2.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel(s) would be inoperable.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR Section 7.19.
2. GENE-770-06-1, "Bases for Changes To Surveillance Test Intervals and Allowed Out-of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.1.3, SR 3.3.5.1.4, and SR 3.3.5.1.5

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequencies of SR 3.3.5.1.3, SR 3.3.5.1.4, and SR 3.3.5.1.5 are based upon the magnitude of equipment drift in the setpoint analysis.

SR 3.3.5.1.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.1, LCO 3.5.2, LCO 3.7.2, and LCO 3.8.1 overlaps this Surveillance to complete testing of the assumed safety function. The LOGIC SYSTEM FUNCTIONAL TEST shall include a calibration of time delay relays and timers necessary for proper functioning of the logic.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of Reference 1.

SR 3.3.5.2.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency of SR 3.3.5.2.3 is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.3 overlaps this Surveillance to provide complete testing of the safety function.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. GENE-770-06-2, "Addendum to Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.

2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on PCIVs in LCO 3.6.1.3 overlaps this Surveillance to provide complete testing of the assumed safety function. The LOGIC SYSTEM FUNCTIONAL TEST shall include a calibration of time delay relays and timers necessary for proper functioning of the logic. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR, Section 6.5.
2. FSAR, Chapter 14.
3. NEDO-31466, "Technical Specification Screening Criteria Application and Risk Assessment," November 1987.
4. FSAR, Section 4.9.3.
5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
6. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on SCIVs and the SGT System in LCO 3.6.4.2 and LCO 3.6.4.3, respectively, overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience with these components supports performance of these Surveillances at their designated Frequencies. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Chapter 5 and Section 7.3.5.
2. FSAR, Chapter 14.
3. FSAR, Section 14.6.3.5.
4. FSAR, Sections 14.6.3.6 and 14.6.4.5.
5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
6. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.7.1.4 and SR 3.3.7.1.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.7.3, "Control Room Emergency Ventilation (CREV) System," overlaps this Surveillance to provide complete testing of the assumed safety function.

The 184 day Frequency for Function 5 is based on equipment capability. The 24 month Frequency for Functions 1, 2, 3, and 4 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of these Surveillances at their designated Frequencies.

REFERENCES

1. FSAR, Section 10.12.5.3.
2. FSAR, Section 14.6.3.7.
3. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
4. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.8.1.3

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel. The system functional testing performed in LCO 3.8.1 and LCO 3.8.2 overlaps this Surveillance to provide complete testing of the assumed safety functions.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR, Figure 8.4-4.
2. FSAR, Section 6.5.
3. FSAR, Section 8.5.4.
4. FSAR, Chapter 14.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.8.2.3

Performance of a system functional test demonstrates that, with a required system actuation (simulated or actual) signal, the logic of the system will automatically trip open the associated power monitoring assembly. Only one signal per power monitoring assembly is required to be tested. This Surveillance overlaps with the CHANNEL CALIBRATION to provide complete testing of the safety function. The system functional test of the Class 1E contactors is included as part of this test to provide complete testing of the safety function. If the contactors are incapable of operating, the associated electric power monitoring assembly would be inoperable.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR, Section 7.2.3.2.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.3.2 (continued)

The 24 month Frequency was developed based on the S/RV tests required by the ASME Boiler and Pressure Vessel Code, Section XI (Ref. 3). Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 4.4.6.
2. FSAR, Section 14.5.1.
3. ASME Boiler and Pressure Vessel Code, Section XI.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.5.4

This SR is for the performance of a CHANNEL CALIBRATION of required leakage detection system instrumentation channels. The calibration verifies the accuracy of the instrument string. The Frequency of 24 months is a typical refueling cycle and considers channel reliability. Operating experience with these components supports performance of the Surveillance at this Frequency.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
2. FSAR, Section 4.10.3.
3. GEAP-5620, "Failure Behavior in ASTM A106B Pipes Containing Axial Through-Wall Flaws," April 1968.
4. NUREG-75/067, "Investigation and Evaluation of Cracking in Austenitic Stainless Steel Piping in Boiling Water Reactors," October 1975.
5. FSAR, Section 4.10.3.2.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8 (continued)

pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.7 and SR 3.5.1.8 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

The Frequency for SR 3.5.1.6 and SR 3.5.1.7 is in accordance with the Inservice Testing Program requirements. The 24 month Frequency for SR 3.5.1.8 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.9

The ECCS subsystems are required to actuate automatically to perform their design functions. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of HPCI, CS, and LPCI will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup and actuation of all automatic valves to their required positions. This SR also ensures that the HPCI System will automatically restart on an RPV low-low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.10

The ADS designated S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to demonstrate that the mechanical portions of the ADS function (i.e., solenoids) operate as designed when initiated either by an actual or simulated initiation signal, causing proper actuation of all the required components. SR 3.5.1.11 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note that excludes valve actuation. This prevents an RPV pressure blowdown.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.11 (continued)

The Frequency of 24 months is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.5.1.12

Verification every 24 months of the automatic transfer capability between the normal and alternate power supply (480 V shutdown boards) for the RMOV boards which supply power for each LPCI subsystem inboard injection valve and each recirculation pump discharge valve demonstrates that AC electrical power is available to operate these valves following loss of power to one of the 4 kV shutdown boards. The ability to provide power to the inboard injection valve and the recirculation pump discharge valve from two independent 4 kV shutdown boards ensures that single failure of an EDG will not result in the failure of both LPCI pumps in one subsystem. Therefore, the failure of the automatic transfer capability will result in the inoperability of the affected LPCI subsystem. The 24 month Frequency has been found to be acceptable based on engineering judgment and operating experience.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

A 92 day Frequency for SR 3.5.3.3 is consistent with the Inservice Testing Program requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.3.5

The RCIC System is required to actuate automatically in order to perform its design function satisfactorily. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of the RCIC System will cause the system to operate as designed, including actuation of the system throughout its emergency operating sequence; that is, automatic pump startup and actuation of all automatic valves to their required positions. This test also ensures the RCIC System will automatically restart on an RPV low-low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.2 overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1.2 (continued)

Satisfactory performance of this SR can be achieved by establishing a known differential pressure between the drywell and the suppression chamber and verifying that the pressure in either the suppression chamber or the drywell does not change by more than 0.25 inch of water per minute over a 10 minute period. The leakage test is performed every 24 months. The 24 month Frequency was developed considering it is prudent that this Surveillance be performed during a unit outage and also in view of the fact that component failures that might have affected this test are identified by other primary containment SRs.

REFERENCES

1. FSAR, Section 5.2.
2. FSAR, Section 14.6.
3. 10 CFR 50, Appendix J, Option B.
4. NEI 94-01, Revision O, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J."
5. ANSI/ANS-56.8-1994, "American National Standard for Containment System Leakage Testing Requirement."
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.7

Automatic PCIVs close on a primary containment isolation signal to prevent leakage of radioactive material from primary containment following a DBA. This SR ensures that each automatic PCIV will actuate to its isolation position on a primary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.1 overlaps this SR to provide complete testing of the safety function. The 24 month Frequency was developed considering it is prudent that this Surveillance be performed only during a unit outage since isolation of penetrations would eliminate cooling water flow and disrupt the normal operation of many critical components. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.6.1.3.8

This SR requires a demonstration that each reactor instrumentation line excess flow check valve (EFCV) is OPERABLE by verifying that the valve actuates to the isolation position on an actual or simulated instrument line break signal. This SR provides assurance that the instrumentation line EFCVs will perform so that the radiological consequences will not exceed the predicted radiological consequences during events evaluated in Reference 5. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.9

The TIP shear isolation valves are actuated by explosive charges. An in place functional test is not possible with this design. The explosive squib is removed and tested to provide assurance that the valves will actuate when required. The replacement charge for the explosive squib shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of the batch successfully fired. The Frequency of 24 months on a STAGGERED TEST BASIS is considered adequate given the administrative controls on replacement charges and the frequent checks of circuit continuity (SR 3.6.1.3.4).

SR 3.6.1.3.10

The analyses in References 1 and 5 are based on leakage that is less than the specified leakage rate. Leakage through each MSIV must be ≤ 11.5 scfh when tested at ≥ P_t (25 psig). This ensures that MSIV leakage is properly accounted for in determining the overall primary containment leakage rate. The Frequency is specified in the Primary Containment Leakage Rate Testing Program.

SR 3.6.1.3.11

Surveillance of water tested lines ensures that sufficient inventory will be available to provide a sealing function for at least 30 days at a pressure of 1.1 Pa. Sufficient inventory ensures there is no path for leakage of primary containment atmosphere to the environment following a DBA. Leakage from containment isolation valves that terminate below the suppression pool water level may be excluded from the total leakage provided a sufficient fluid inventory is available as described in 10 CFR 50, Appendix J, Option B.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.5.3

Demonstration of vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of ≤ 0.5 psid is valid. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at this Frequency. The 24 month Frequency is further justified because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.

REFERENCES

1. TVA Calculation ND-Q0064-900040.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.6.3

Verification of the differential pressure required to open the vacuum breaker is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of 0.5 psid is valid. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. The 24 month Frequency is further justified because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.

REFERENCES

1. FSAR, Section 5.2.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
3. Technical Requirements Manual.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.1.3 and SR 3.6.4.1.4

The SGT System exhausts the secondary containment atmosphere to the environment through appropriate treatment equipment. To ensure that all fission products are treated, SR 3.6.4.1.3 verifies that the SGT System will rapidly establish and maintain a pressure in the secondary containment that is less than the lowest postulated pressure external to the secondary containment boundary. This is confirmed by demonstrating that two SGT subsystems will draw down the secondary containment to ≥ 0.25 inches of vacuum water gauge in ≤ 120 seconds. This cannot be accomplished if the secondary containment boundary is not intact. SR 3.6.4.1.4 demonstrates that two SGT subsystems can maintain ≥ 0.25 inches of vacuum water gauge at a stable flow rate ≤ 12,000 cfm. Both of these SRs are performed under neutral (< 5 mph) wind conditions. Therefore, these two tests are used to ensure secondary containment boundary integrity. Since these SRs are secondary containment tests, they need not be performed with each combination of SGT subsystems. The SGT subsystems are tested on a STAGGERED TEST BASIS, however, to ensure that in addition to the requirements of LCO 3.6.4.3, any two SGT subsystems will perform this test. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 5.3.
2. FSAR, Section 14.6.3.
3. FSAR, Section 14.6.4.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

Verifying that the isolation time of each power operated, automatic SCIV is within limits is required to demonstrate OPERABILITY. The isolation time test ensures that the SCIV will isolate in a time period less than or equal to that assumed in the safety analyses. The Frequency of this SR is 92 days.

SR 3.6.4.2.2

Verifying that each automatic SCIV closes on a secondary containment isolation signal is required to prevent leakage of radioactive material from secondary containment following a DBA or other accidents. This SR ensures that each automatic SCIV will actuate to the isolation position on a secondary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation," overlaps this SR to provide complete testing of the safety function. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 14.6.3.
2. FSAR, Section 14.6.4.
3. Technical Requirements Manual.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.3.3

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

SR 3.6.4.3.4

This SR verifies that the SGT decay heat discharge dampers are in the correct position. This ensures that the decay heat removal mode of SGT System operation is available. Operating experience has shown that these components usually pass the Surveillance when performed at the 12 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 41.
2. FSAR, Section 5.3.3.7.
3. FSAR, Section 14.6.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.2.3

This SR verifies that the EECW System pumps will automatically start to provide cooling water to the required safety related equipment during an accident event. This is demonstrated by the use of an actual or simulated initiation signal. This SR includes a functional test of the initiation logic and a functional test and calibration of the EECW pump timers (both normal power and diesel power).

Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, this Frequency is concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Chapter 5.
2. FSAR, Chapter 14.
3. FSAR, Section 10.10.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.3.3

This SR verifies that on an actual or simulated initiation signal, each CREV subsystem starts and operates. This SR includes verification that dampers necessary for proper CREV operation function as required. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.4 and SR 3.3.7.1.6 overlaps this SR to provide complete testing of the safety function.

SR 3.7.3.4

This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to outdoors is periodically tested to verify proper function of the CREV System. During the emergency mode of operation, the CREV System is designed to slightly pressurize the control room ≥ 0.125 inches water gauge positive pressure with respect to the outdoors to prevent unfiltered inleakage. The CREV System is designed to maintain this positive pressure at a flow rate of ≥ 2700 cfm and ≤ 3300 cfm to the control room in the pressurization mode. The Frequency of 24 months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration systems SRs.

REFERENCES

1. FSAR, Section 10.12.
2. FSAR, Chapter 10.
3. FSAR, Chapter 14.
4. FSAR, Section 14.6.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

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

REFERENCES

1. FSAR, Section 10.12.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS

B.1 (continued)

Turbine Bypass System is not required to protect fuel integrity during abnormal operational transients. The 4 hour Completion Time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

Cycling each main turbine bypass valve through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will function when required. The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions. Operating experience has shown that these components usually pass the SR when performed at the 31 day Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

SR 3.7.5.2

The Main Turbine Bypass System is required to actuate automatically to perform its design function. This SR demonstrates that, with the required system initiation signals, the valves will actuate to their required position. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and because of the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown the 24 month Frequency, which is based on the refueling cycle, is acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.5.3

This SR ensures that the TURBINE BYPASS SYSTEM RESPONSE TIME is in compliance with the assumptions of the appropriate safety analysis. The response time limits are specified in the cycle specific transient analyses performed to support the preparation of FSAR, Appendix N, Supplemental Reload Licensing Report (Ref. 4). The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and because of the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown the 24 month Frequency, which is based on the refueling cycle, is acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 7.11.3.3.
2. FSAR, Section 14.5.1.1.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. FSAR, Appendix N.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.5 (continued)

The voltage tolerances specified in this SR are based on the degraded voltage and overvoltage relay settings. The frequency tolerances specified in this SR are derived from Safety Guide 9 (Ref. 3) recommendations for response during load sequence intervals. The voltage and frequency specified are consistent with the design range of the equipment powered by the DG. SR 3.8.1.5.a corresponds to the maximum frequency excursion, while SR 3.8.1.5.b and 3.8.1.5.c are steady state voltage and frequency values to which the system must recover following load rejection. The 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 8).

This SR is modified by a Note. In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, the Note requires that, if synchronized to offsite power, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.

SR 3.8.1.6

This Surveillance demonstrates that the DG automatically starts from the design basis actuation signal (LOCA signal). This test will also verify the start of the Unit 3 DGs aligned to the SGT and CREV Systems on an accident signal from Unit 2. In order to minimize the number of DGs involved in testing, demonstration of automatic starts of the Unit 3 DGs on an accident signal from Unit 2 may be performed in conjunction

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.6 (continued)

with testing to demonstrate automatic starts of the Unit 3 DGs on an accident signal from Unit 3. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

To minimize wear and tear on the DGs, this SR has been modified by a Note which permits DG starts to be preceded by an engine prelube period followed by a warmup period.

SR 3.8.1.7

Demonstration once per 24 months that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours - 22 hours of which is at a load equivalent to the continuous rating of the DG, and 2 hours of which is at a load equivalent to 105 percent to 110 percent of the continuous duty rating of the DG. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, discussed in SR 3.8.1.1, and for gradual loading, discussed in SR 3.8.1.2, are applicable to this SR.

In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience. A load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.7 (continued)

The 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 8).

This Surveillance has been modified by a Note that states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test.

SR 3.8.1.8

Under accident conditions (and loss of offsite power) loads are sequentially connected to the shutdown boards by automatic individual pump timers. The individual pump timers control the permissive and starting signals to motor breakers to prevent overloading of the DGs due to high motor starting currents. This SR is demonstrated by performance of SR 3.3.5.1.5 for the Core Spray and LPCI pump timers, SR 3.7.2.3 for the EECW pump timers, and SR 3.8.1.9.b for the 480 V load shed logic timers. The allowable values for these timers ensure that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. Reference 2 provides a summary of the automatic loading of ESF shutdown boards.

The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 8).

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.9 (continued)

The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 24 months.

This SR is modified by a Note. The reason for the Note is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

SR 3.8.1.10

This Surveillance is provided to direct that the appropriate Surveillances for the required Unit 3 DGs are governed by the Unit 3 Technical Specifications. Performance of the applicable Unit 3 Surveillances will satisfy any Unit 3 requirements, as well as this Unit 1 and 2 Surveillance requirement. The Frequency required by the applicable Unit 3 SR also governs performance of that SR for both Units.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.2 and SR 3.8.4.5 (continued).

SR 3.8.4.2 verifies that the chargers are capable of charging the batteries after their designed duty cycle testing and ensures that the chargers will perform their design function. This SR is modified by a Note that allows the performance of SR 3.8.4.5 in lieu of this Surveillance requirement. SR 3.8.4.5 verifies that the chargers are capable of charging the batteries after each discharge test and ensures that the chargers are capable of performing at maximum output. SR 3.8.4.2 is performed at the same frequency as the 24 month service test (SR 3.8.4.3), while SR 3.8.4.5 is performed following the 60 month battery discharge test (SR 3.8.4.4).

SR 3.8.4.5 is modified by a Note. The Note is added to this SR to acknowledge that credit may be taken for unplanned events that satisfy the Surveillance.

SR 3.8.4.3

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length corresponds to the design duty cycle requirements as specified in Reference 4.

The Frequency of 24 months is consistent with the plant conditions required to perform the Surveillance, plus other supporting Surveillance Requirements.

(continued)

BASES (continued)

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6.
3. IEEE Standard 308.
4. FSAR, Sections 8.5 and 8.6.
5. FSAR, Chapters 6 and 14.
6. Regulatory Guide 1.93.
7. IEEE Standard 450-1995.
8. Regulatory Guide 1.32, February 1977.
9. Deleted.
10. IEEE Standard 485, 1983.
11. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 215
License No. DPR-68

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated June 12, 1998, as supplemented August 14, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

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

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

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

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

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-68 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 215, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented before commencing Cycle 10 operation.

FOR THE NUCLEAR REGULATORY COMMISSION

Frederick J. Hebdon

Frederick J. Hebdon, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: November 30, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 215

FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE	INSERT
3.1-25	3.1-25
3.1-26	3.1-26
3.1-29	3.1-29
3.3-6	3.3-6
3.3-19	3.3-19
3.3-20	3.3-20
3.3-23	3.3-23
3.3-26	3.3-26
3.3-29	3.3-29
3.3-32	3.3-32
3.3-35	3.3-35
3.3-42	3.3-42
3.3-51	3.3-51
3.3-58	3.3-58
3.3-64	3.3-64
3.3-69	3.3-69
3.3-74	3.3-74
3.3-78	3.3-78
3.4-8	3.4-8
3.4-14	3.4-14
3.5-6	3.5-6
3.5-7	3.5-7
3.5-11	3.5-11
3.5-13	3.5-13
3.5-14	3.5-14
3.6-2	3.6-2
3.6-16	3.6-16
3.6-21	3.6-21
3.6-23	3.6-23
3.6-46	3.6-46
3.6-50	3.6-50
3.6-54	3.6-54
3.7-8	3.7-8
3.7-12	3.7-12
3.7-16	3.7-16
3.7-18	3.7-18
3.8-11	3.8-11
3.8-12	3.8-12
3.8-13	3.8-13
3.8-24	3.8-24
5.0-14	5.0-14
5.0-15	5.0-15
5.0-16	5.0-16
B 3.1-54	B 3.1-54
B 3.1-55	B 3.1-55
B 3.1-62	B 3.1-62
B 3.3-42	B 3.3-42
B 3.3-43	B 3.3-43

Unit 3 (continued)

B 3.3-44	B 3.3-44
B 3.3-45	B 3.3-45
B 3.3-70	B 3.3-70
B 3.3-71	B 3.3-71
B 3.3-72	B 3.3-72
B 3.3-73	B 3.3-73
B 3.3-82	B 3.3-82
B 3.3-83	B 3.3-83
B 3.3-97	B 3.3-97
B 3.3-103	B 3.3-103
B 3.3-104	B 3.3-104
B 3.3-118	B 3.3-118
B 3.3-119	B 3.3-119
B 3.3-129	B 3.3-129
B 3.3-130	B 3.3-130
B 3.3-177	B 3.3-177
B 3.3-188	B 3.3-188
B 3.3-189	B 3.3-189
B 3.3-224	B 3.3-224
B 3.3-239	B 3.3-239
B 3.3-255	B 3.3-255
B 3.3-266	B 3.3-266
B 3.3-277	B 3.3-277
B 3.4-22	B 3.4-22
B 3.4-36	B 3.4-36
B 3.5-17	B 3.5-17
B 3.5-18	B 3.5-18
B 3.5-19	B 3.5-19
B 3.5-21	B 3.5-21
B 3.5-36	B 3.5-36
B 3.5-37	B 3.5-37
B 3.6-6	B 3.6-6
B 3.6-34	B 3.6-34
B 3.6-35	B 3.6-35
B 3.6-48	B 3.6-48
B 3.6-56	B 3.6-56
B 3.6-106	B 3.6-106
B 3.6-113	B 3.6-113
B 3.6-121	B 3.6-121
B 3.7-16	B 3.7-16
B 3.7-25	B 3.7-25
B 3.7-31	B 3.7-31
B 3.7-35	B 3.7-35
B 3.7-36	B 3.7-36
B 3.8-33	B 3.8-33
B 3.8-34	B 3.8-34
B 3.8-35	B 3.8-35
B 3.8-37	B 3.8-37
B 3.8-65	B 3.8-65
B 3.8-68	B 3.8-68

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.5	Verify the SLC conditions satisfy the following equation: $$\frac{(\ C\ )(\ Q\ )(\ E\ )}{(13\text{ wt. }\%)(86\text{ gpm})(19.8\text{ atom}\%)} \geq 1$$ where, C = sodium pentaborate solution concentration (weight percent) Q = pump flow rate (gpm) E = Boron-10 enrichment (atom percent Boron-10)	31 days <u>AND</u> Once within 24 hours after water or boron is added to the solution
SR 3.1.7.6	Verify each pump develops a flow rate ≥ 39 gpm at a discharge pressure ≥ 1325 psig.	24 months
SR 3.1.7.7	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	24 months on a STAGGERED TEST BASIS
SR 3.1.7.8	Verify all piping between storage tank and pump suction is unblocked.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.9	Verify sodium pentaborate enrichment is within the limits established by SR 3.1.7.5 by calculating within 24 hours and verifying by analysis within 30 days.	24 months AND After addition to SLC tank
SR 3.1.7.10	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.	31 days

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.	31 days
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	92 days
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 60 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	24 months

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.10	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.1.1.11	(Deleted)	
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.1.1.13	-----NOTE----- Neutron detectors are excluded. ----- Perform CHANNEL CALIBRATION.	24 months
SR 3.3.1.1.14	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months
SR 3.3.1.1.15	Verify Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 30% RTP.	24 months
SR 3.3.1.1.16	-----NOTE----- For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ----- Perform CHANNEL FUNCTIONAL TEST.	184 days

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.1	Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.2.1.2	-----NOTE----- Not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2. -----	
	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.3	-----NOTE----- Not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. -----	
	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.4	-----NOTE----- Neutron detectors are excluded. -----	
	Perform CHANNEL CALIBRATION.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.5	Verify the RWM is not bypassed when THERMAL POWER is ≤ 10% RTP.	24 months
SR 3.3.2.1.6	-----NOTE----- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. ---------- Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.2.1.7	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM
SR 3.3.2.1.8	-----NOTE----- Neutron detectors are excluded. ---------- Verify the RBM: a. Low Power Range -- Upscale Function is not bypassed when THERMAL POWER is ≥ 27% and ≤ 62% RTP. b. Intermediate Power Range -- Upscale Function is not bypassed when THERMAL POWER is > 62% and ≤ 82% RTP. c. High Power Range -- Upscale Function is not bypassed when THERMAL POWER is > 82% RTP.	24 months

SURVEILLANCE REQUIREMENTS

NOTE

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.2.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.2.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 586 inches above vessel zero.	24 months
SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK for each required PAM instrumentation channel.	31 days
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION of the Drywell and Torus H_2 analyzer Functions.	92 days
SR 3.3.3.1.3	Perform CHANNEL CALIBRATION of the Reactor Pressure Functions.	184 days
SR 3.3.3.1.4	Perform CHANNEL CALIBRATION for each required PAM instrumentation channel except for the Reactor Pressure, and the Drywell and Torus H_2 analyzer Functions.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Verify each required control circuit and transfer switch is capable of performing the intended function.	24 months
SR 3.3.3.2.2	Perform CHANNEL CALIBRATION for the Suppression Pool Water Level Function.	24 months
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel except for the Suppression Pool Water Level Function.	24 months

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.	92 days
SR 3.3.4.1.2	Verify TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is $\geq$ 30% RTP.	24 months
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: TSV - Closure: $\leq$ 10% closed; and TCV Fast Closure, Trip Oil Pressure - Low: $\geq$ 550 psig.	24 months
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months

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 of the Reactor Vessel Water Level - Low Low, Level 2 Function.	24 hours
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level - Low Low, Level 2: ≥ 471.52 inches above vessel zero; and b. Reactor Steam Dome Pressure - High: ≤ 1175 psig.	24 months
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months

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 and 3.f; and (b) for up to 6 hours for Functions other than 3.c and 3.f provided the associated Function or the redundant Function maintains ECCS initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.5.1.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

NOTES

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

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

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

SURVEILLANCE REQUIREMENTS

NOTES

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	122 days
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

NOTES

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

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

3. For Functions 3 and 4, when a channel is placed in an inoperable status solely for performance of a CHANNEL CALIBRATION or maintenance, entry into associated Conditions and Required Actions may be delayed for up to 24 hours provided the downscale trip of the inoperable channel is placed in the tripped condition.

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.7.1-1 to determine which SRs apply for each CREV 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 CREV initiation capability.

3. For Functions 3 and 4, when a channel is placed in an inoperable status solely for the performance of a CHANNEL CALIBRATION or maintenance, entry into the associated Conditions and Required Actions may be delayed for up to 24 hours provided the downscale trip of the inoperable channel is placed in the trip condition.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	184 days
SR 3.3.7.1.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.7.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.8.1.2	Perform CHANNEL CALIBRATION.	12 months
SR 3.3.8.1.3	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 108.5 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 56 Hz, with time delay set to ≤ 4 seconds.	184 days
SR 3.3.8.2.3	Perform a system functional test.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify the safety function lift settings of the required 12 S/RVs are within ± 3% of the setpoint as follows: Number of S/RVs — Setpoint (psig) 4 — 1135 4 — 1145 5 — 1155 Following testing, lift settings shall be within ± 1%.	In accordance with the Inservice Testing Program
SR 3.4.3.2	---NOTE--- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ------ Verify each required S/RV opens when manually actuated.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Perform a CHANNEL CHECK of required primary containment atmospheric monitoring system instrumentation.	12 hours
SR 3.4.5.2	Perform a CHANNEL FUNCTIONAL TEST of required primary containment atmospheric monitoring system instrumentation.	31 days
SR 3.4.5.3	Perform a CHANNEL CALIBRATION of required drywell sump flow integrator instrumentation.	184 days
SR 3.4.5.4	Perform a CHANNEL CALIBRATION of required leakage detection system instrumentation.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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, with reactor pressure ≤ 1040 and ≥ 950 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.	92 days
SR 3.5.1.8	------------------NOTE------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.	24 months
SR 3.5.1.9	------------------NOTE------------------ Vessel injection/spray may be excluded. -- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.10	-----NOTE----- Valve actuation may be excluded. ---------- Verify the ADS actuates on an actual or simulated automatic initiation signal.	24 months
SR 3.5.1.11	-----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 opens when manually actuated.	24 months
SR 3.5.1.12	Verify automatic transfer of the power supply from the normal source to the alternate source for each LPCI subsystem inboard injection valve and each recirculation pump discharge valve.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure. SYSTEM / FLOW RATE / NO. OF PUMPS / SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF CS / ≥ 6250 gpm / 2 / ≥ 105 psid SYSTEM / FLOW RATE / NO. OF PUMPS / INDICATED SYSTEM PRESSURE LPCI / ≥ 9,000 gpm / 1 / ≥ 125 psig	In accordance with the Inservice Testing Program
SR 3.5.2.5	-----NOTE----- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.3.3	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 1040 psig and ≥ 950 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.	92 days
SR 3.5.3.4	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.	24 months

(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.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.1	Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2	Verify drywell to suppression chamber differential pressure does not decrease at a rate > 0.25 inch water gauge per minute over a 10 minute period at an initial differential pressure of 1 psid.	24 months

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to the isolation position on a simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is ≤ 11.5 scfh when tested at ≥ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Verify combined leakage through water tested lines that penetrate primary containment are within the limits specified in the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.5.1	-------------------NOTES------------------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. -- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.5.2	Perform a functional test of each vacuum breaker.	92 days
SR 3.6.1.5.3	Verify the opening setpoint of each vacuum breaker is ≤ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	-------------------NOTES------------------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. One drywell suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights. -- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	In accordance with the Inservice Testing Program
SR 3.6.1.6.3	Verify the differential pressure required to open each vacuum breaker is ≤ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	31 days
SR 3.6.4.1.2	Verify each secondary containment access door is closed, except when the access opening is being used for entry and exit, then at least one door shall be closed.	31 days
SR 3.6.4.1.3	Verify two standby gas treatment (SGT) subsystems will draw down the secondary containment to ≥ 0.25 inch of vacuum water gauge in ≤ 120 seconds.	24 months on a STAGGERED TEST BASIS
SR 3.6.4.1.4	Verify two SGT subsystems can maintain ≥ 0.25 inch of vacuum water gauge in the secondary containment at a flow rate ≤ 12,000 cfm.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	Verify the isolation time of each power operated, automatic SCIV is within limits.	92 days
SR 3.6.4.2.2	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	24 months

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating.	31 days
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.	24 months
SR 3.6.4.3.4	Verify the SGT decay heat discharge dampers are in the correct position.	12 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	-------------------NOTE------------------- Refer to SR 3.7.1.2 for additional UHS requirements. -- Verify the average water temperature of UHS is ≤ 95°F.	24 hours
SR 3.7.2.2	-------------------NOTE------------------- Isolation of flow to individual components does not render EECW System inoperable. -- Verify each EECW system manual and power operated valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.2.3	Verify each required EECW pump actuates on an actual or simulated initiation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each CREV subsystem for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.3.2	Perform required CREV filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.3.3	Verify each CREV subsystem actuates on an actual or simulated initiation signal.	24 months
SR 3.7.3.4	Verify each CREV subsystem can maintain a positive pressure of ≥ 0.125 inches water gauge relative to the outdoors during the pressurization mode of operation at a flow rate of ≥ 2700 cfm and ≤ 3300 cfm.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify one complete cycle of each main turbine bypass valve.	31 days
SR 3.7.5.2	Perform a system functional test.	24 months
SR 3.7.5.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.5	-------------------NOTE------------------- If performed with the 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: a. Following load rejection, the frequency is ≤ 66.75 Hz; and b. Following load rejection, the steady state voltage recovers to ≥ 3940 V and ≤ 4400 V. c. Following load rejection, the steady state frequency recovers to ≥ 58.8 Hz and ≤ 61.2 Hz.	24 months
SR 3.8.1.6	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period followed by a warmup period. -- Verify on an actual or simulated accident signal each DG auto-starts from standby condition.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	------------------NOTE------------------ Momentary transients outside the load and power factor ranges do not invalidate this test. --- Verify each DG operating at a power factor ≤ 0.9 operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 2680 kW and ≤ 2805 kW; and b. For the remaining hours of the test loaded ≥ 2295 kW and ≤ 2550 kW.	24 months
SR 3.8.1.8	Verify interval between each timed load block is within the allowable values for each individual timer.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. -- 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; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through individual timers, 3. achieves steady state voltage ≥ 3940 V and ≤ 4400 V, 4. achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	24 months
SR 3.8.1.10	For required Unit 1 and 2 DGs, the SRs of Unit 1 and 2 Technical Specifications are applicable.	In accordance with applicable SRs

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 248 V for each Unit and Shutdown Board battery and ≥ 124 V for each DG battery on float charge.	7 days
SR 3.8.4.2	-------------------NOTE------------------- Performance of SR 3.8.4.5 satisfies this SR. --	
	Verify each required battery charger charges its respective battery after the battery's 24 month service test.	24 months
SR 3.8.4.3	-------------------NOTE------------------- The modified performance discharge test in SR 3.8.4.4 may be performed in lieu of the service test in SR 3.8.4.3 once per 60 months. --	
	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.	24 months

(continued)

5.5 Programs and Manuals (continued)

5.5.7 Ventilation Filter Testing Program (VFTP)

The VFTP shall establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

a. Demonstrate for each of the ESF systems (Standby Gas Treatment (SGT) System and Control Room Emergency Ventilation (CREV) System) that an inplace test of the HEPA filters shows a penetration and system bypass ≤ 1.0% when tested in accordance with ANSI N510-1975 at the system flowrate specified below, ± 10%.

ESF Ventilation System	Flowrate (cfm)
SGT System	9000
CREV System	3000

This testing shall be performed 1) every 24 months, 2) after partial or complete replacement of HEPA filters, 3) after any structural maintenance on the system housing, or 4) following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass ≤ 1.0% when tested in accordance with ANSI N510-1975 at the system flowrate specified below, ± 10%.

ESF Ventilation System	Flowrate (cfm)
SGT System	9000
CREV System	3000

This testing shall be performed 1) every 24 months, 2) after partial or complete replacement of the charcoal adsorber bank, 3) after any structural maintenance on the system housing, or 4) following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, shows a methyl iodide efficiency ≥ 90% when tested in accordance with ASTM D3803-1989.

This testing shall be performed 1) every 24 months, 2) after every 720 hours of system operation, or 3) following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

d. Once every 24 months 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 at the system flowrate specified below, ± 10%:

ESF Ventilation System	Delta P (inches water)	Flowrate (cfm)
SGT System	7	9000
CREV System	6	3000

e. Once every 24 months demonstrate that the heaters for the SGT System dissipate ≥ 40 kW when tested in accordance with ANSI N510-1975.

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained downstream of the offgas recombiners, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

The program shall include:

a. The limits for concentrations of hydrogen downstream of the offgas recombiners 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

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.7.6

Demonstrating that each SLC System pump develops a flow rate ≥ 39 gpm at a discharge pressure ≥ 1325 psig ensures that pump performance has not degraded during the fuel cycle. This minimum pump flow rate requirement ensures that, when combined with the sodium pentaborate solution concentration and enrichment requirements, the rate of negative reactivity insertion from the SLC System will adequately compensate for the positive reactivity effects encountered during power reduction, cooldown of the moderator, and xenon decay. This test confirms one point on the pump design curve and is indicative of overall performance. The 24 month Frequency is acceptable since inservice testing of the pumps, performed every 92 days, will detect any adverse trends in pump performance.

SR 3.1.7.7 and SR 3.1.7.8

These Surveillances ensure that there is a functioning flow path from the boron solution storage tank to the RPV, including the firing of an explosive valve. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of that batch successfully fired. Additionally, replacement charges shall be selected such that the age of charge in service shall not exceed five years from the manufacturer's assembly date. The pump and explosive valve tested should be alternated such that both complete flow paths are tested every 48 months at alternating 24 month intervals.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.7.7 and SR 3.1.7.8 (continued)

The Surveillance may be performed in separate steps to prevent injecting boron into the RPV. An acceptable method for verifying flow from the pump to the RPV is to pump demineralized water from a test tank through one SLC subsystem and into the RPV. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Demonstrating that all piping between the boron solution storage tank and the suction inlet to the injection pumps is unblocked ensures that there is a functioning flow path for injecting the sodium pentaborate solution. An acceptable method for verifying that the suction piping is unblocked is to pump from the storage tank to the storage tank. The 24 month Frequency is acceptable since there is a low probability that the subject piping will be blocked due to precipitation of the boron from solution in the piping or by other means.

SR 3.1.7.9

The enriched sodium pentaborate solution is made by combining stoichiometric quantities of borax and boric acid in demineralized water. Isotopic tests on these chemicals to verify the actual B-10 enrichment must be performed at least every 24 months and after addition of boron to the SLC tank in order to ensure that the proper B-10 atom percentage is being used and SR 3.1.7.5 will be met. The sodium pentaborate enrichment must be calculated within 24 hours and verified by analysis within 30 days.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.8.3 (continued)

bounding analysis for release of reactor coolant outside containment (Ref. 2). Similarly, after receipt of a simulated or actual scram reset signal, the opening of the SDV vent and drain valves is verified. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1 and the scram time testing of control rods in LCO 3.1.3 overlap this Surveillance to provide complete testing of the assumed safety function. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 3.4.5.3.1.
2. FSAR, Section 14.6.5.
3. 10 CFR 100.
4. FSAR, Section 6.5.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.8, SR 3.3.1.1.12 and SR 3.3.1.1.16 (continued)

The 24 month Frequency of SR 3.3.1.1.12 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

SR 3.3.1.1.9, SR 3.3.1.1.10 and SR 3.3.1.1.13

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. For the APRM Simulated Thermal Power - High Function, SR 3.3.1.1.13 also includes calibrating the associated recirculation loop flow channel. For MSIV - Closure, SDV Water Level - High (Float Switch), and TSV - Closure Functions, SR 3.3.1.1.13 includes physical inspection and actuation of the switches.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.9, SR 3.3.1.1.10 and SR 3.3.1.1.13 (continued)

A Note to SR 3.3.1.1.9 and SR 3.3.1.1.13 states that neutron detectors are excluded from CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the 7 day calorimetric calibration (SR 3.3.1.1.2) and the 1000 MWD/T LPRM calibration against the TIPs (SR 3.3.1.1.7). A second Note for SR 3.3.1.1.9 is provided that requires the IRM SRs to be performed within 12 hours of entering MODE 2 from MODE 1. Testing of the MODE 2 IRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads, or movable links. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

The Frequency of SR 3.3.1.1.9 is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.1.1.10 is based upon the assumption of a 184 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.1.1.13 is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.11

(Deleted)

SR 3.3.1.1.14

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The functional testing of control rods (LCO 3.1.3), and SDV vent and drain valves (LCO 3.1.8), overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

The LOGIC SYSTEM FUNCTIONAL TEST for APRM Function 2.e simulates APRM trip conditions at the 2-out-of-4 voter channel inputs to check all combinations of two tripped inputs to the 2-out-of-4 logic in the voter channels and APRM related redundant RPS relays.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.15

This SR ensures that scrams initiated from the Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ 30% RTP. This involves calibration of the bypass channels (PIS-1-81A, PIS-1-81B, PIS-1-91A, and PIS-1-91B). Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint.

If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 30% RTP, either due to open main turbine bypass valve(s) or other reasons), then the affected Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition (Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are enabled), this SR is met and the channel is considered OPERABLE.

The Frequency of 24 months is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.2 and SR 3.3.2.1.3 (continued)

any control rod is withdrawn at ≤ 10% RTP in MODE 2. As noted, SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is reduced to ≤ 10% RTP in MODE 1. This allows entry into MODE 2 for SR 3.3.2.1.2, and THERMAL POWER reduction to ≤ 10% RTP for SR 3.3.2.1.3, to perform the required Surveillance if the 92 day Frequency is not met per SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs. The Frequencies are based on reliability analysis (Ref. 8).

SR 3.3.2.1.4

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology..

As noted, neutron detectors are excluded from the CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.7.

The Frequency is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.1.5

The RWM is automatically bypassed when power is above a specified value. The power level is determined from feedwater flow and steam flow signals. The automatic bypass setpoint must be verified periodically to be > 10% RTP. If the RWM low power setpoint is nonconservative, then the RWM is considered inoperable. Alternately, the low power setpoint channel can be placed in the conservative condition (nonbypass). If placed in the nonbypassed condition, the SR is met and the RWM is not considered inoperable. The Frequency is based on the trip setpoint methodology utilized for the low power setpoint channel.

SR 3.3.2.1.6

A CHANNEL FUNCTIONAL TEST is performed for the Reactor Mode Switch - Shutdown Position Function to ensure that the entire channel will perform the intended function. The CHANNEL FUNCTIONAL TEST for the Reactor Mode Switch - Shutdown Position Function is performed by attempting to withdraw any control rod with the reactor mode switch in the shutdown position and verifying a control rod block occurs.

As noted in the SR, the Surveillance is not required to be performed until 1 hour after the reactor mode switch is in the shutdown position, since testing of this interlock with the reactor mode switch in any other position cannot be performed without using jumpers, lifted leads, or movable links. This allows entry into MODES 3 and 4 if the 24 month Frequency is not met per SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.6 (continued)

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

SR 3.3.2.1.7

The RWM will only enforce the proper control rod sequence if the rod sequence is properly input into the RWM computer. This SR ensures that the proper sequence is loaded into the RWM so that it can perform its intended function. The Surveillance is performed once prior to declaring RWM OPERABLE following loading of sequence into RWM, since this is when rod sequence input errors are possible.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.1.8

The RBM setpoints are automatically varied as a function of power. Three Allowable Values are specified in Table 3.3.2.1-1 and the COLR, each within a specific power range. The powers at which the control rod block Allowable Values automatically change are based on the APRM signal's input to each RBM channel. Below the minimum power setpoint, the RBM is automatically bypassed. These power Allowable Values must be verified periodically to be less than or equal to the specified values. If any power range setpoint is nonconservative, then the affected RBM channel is considered inoperable. Alternatively, the power range channel can be placed in the conservative condition (i.e., enabling the proper RBM setpoint). If placed in this condition, the SR is met and the RBM channel is not considered inoperable. As noted, neutron detectors are excluded from the Surveillance because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.7. The 24 month Frequency is based on the actual trip setpoint methodology utilized for these channels.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on reliability analysis (Ref. 2).

SR 3.3.2.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the feedwater and main turbine valves is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a valve is incapable of operating, the associated instrumentation would also be inoperable. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR, Section 14.5.7.

2. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times for Selected Instrumentation Technical Specifications," February 1991.

3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.1.2, SR 3.3.3.1.3, and SR 3.3.3.1.4

A CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies the channel responds to measured parameter with the necessary range and accuracy. For the PCIV position function, the CHANNEL CALIBRATION consists of verifying the remote indications conform to actual valve positions. For the drywell and torus analyzer function, the CHANNEL CALIBRATION is performed using standard gas samples containing a nominal eight-volume percent hydrogen balance nitrogen.

The 92 day Frequency for CHANNEL CALIBRATION of the Drywell and Torus Hydrogen Analyzer is based on operating experience and vendor recommendations. The 184 day frequency for CHANNEL CALIBRATION of the Reactor Pressure Indication is based on plant specific analysis. The 24 month Frequency for CHANNEL CALIBRATION of all other PAM instrumentation in Table 3.3.3.1-1 is based on operating experience and consistency with BFN refueling cycles.

(continued)

BASES

ACTIONS (continued)

B.1

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

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2.1

SR 3.3.3.2.1 verifies each required Backup Control System transfer switch and control circuit performs the intended function. This verification is performed from the backup control panel and locally, as appropriate. Operation of the equipment from the backup control panel is not necessary. The Surveillance can be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the plant can be placed and maintained in MODE 3 from the backup control panel and the local control stations. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.2.2 and SR 3.3.3.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. The test verifies the channel responds to measured parameter values with the necessary range and accuracy.

The Frequency of SR 3.3.3.2.2 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The 24 month Frequency of SR 3.3.3.2.3 is based upon operating experience and consistency with the refueling cycle.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 19.
2. FSAR Section 7.18.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.2

This SR ensures that an EOC-RPT initiated from the TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ 30% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 30% RTP, either due to open main turbine bypass valves or other reasons), the affected TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition, this SR is met with the channel considered OPERABLE.

The Frequency of 24 months is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis..

SR 3.3.4.1.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. The Frequency is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers is included as a part of this test, overlapping the LOGIC SYSTEM FUNCTIONAL TEST, to provide complete testing of the associated safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel(s) would also be inoperable.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR, Figure 7.9-2 (EOC-RPT logic diagram).
2. FSAR, Section 7.9.4.5.
3. FSAR, Sections 14.5.1.1 and 14.5.1.3.
4. FSAR, Section 4.3.5.
5. GENE-770-06-1, "Bases For Changes To Surveillance Test Intervals And Allowed Out-Of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.1 (continued)

The Frequency is based upon operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

SR 3.3.4.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of Reference 2.

SR 3.3.4.2.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel(s) would be inoperable.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR Section 7.19.
2. GENE-770-06-1, "Bases for Changes To Surveillance Test Intervals and Allowed Out-of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.1.3, SR 3.3.5.1.4, and SR 3.3.5.1.5

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequencies of SR 3.3.5.1.3, SR 3.3.5.1.4, and SR 3.3.5.1.5 are based upon the magnitude of equipment drift in the setpoint analysis.

SR 3.3.5.1.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.1, LCO 3.5.2, LCO 3.7.2, and LCO 3.8.1 overlaps this Surveillance to complete testing of the assumed safety function. The LOGIC SYSTEM FUNCTIONAL TEST shall include a calibration of time delay relays and timers necessary for proper functioning of the logic.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of Reference 1.

SR 3.3.5.2.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency of SR 3.3.5.2.3 is based upon the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.3 overlaps this Surveillance to provide complete testing of the safety function.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. GENE-770-06-2, "Addendum to Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.

2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on PCIVs in LCO 3.6.1.3 overlaps this Surveillance to provide complete testing of the assumed safety function. The LOGIC SYSTEM FUNCTIONAL TEST shall include a calibration of time delay relays and timers necessary for proper functioning of the logic. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR, Section 6.5.
2. FSAR, Chapter 14.
3. NEDO-31466, "Technical Specification Screening Criteria Application and Risk Assessment," November 1987.
4. FSAR, Section 4.9.3.
5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
6. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on SCIVs and the.SGT System in LCO 3.6.4.2 and LCO 3.6.4.3, respectively, overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience with these components supports performance of these Surveillances at their designated Frequencies. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Chapter 5 and Section 7.3.5.
2. FSAR, Chapter 14.
3. FSAR, Section 14.6.3.5.
4. FSAR, Sections 14.6.3.6 and 14.6.4.5.
5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
6. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.7.1.4 and SR 3.3.7.1.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.7.3, "Control Room Emergency Ventilation (CREV) System," overlaps this Surveillance to provide complete testing of the assumed safety function.

The 184 day Frequency for Function 5 is based on equipment capability. The 24 month Frequency for Functions 1, 2, 3, and 4 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of these Surveillances at their designated Frequencies.

REFERENCES

1. FSAR, Section 10.12.5.3.
2. FSAR, Section 14.6.3.7.
3. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
4. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.8.1.3

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel. The system functional testing performed in LCO 3.8.1 and LCO 3.8.2 overlaps this Surveillance to provide complete testing of the assumed safety functions.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance of the 24 month Frequency.

REFERENCES

1. FSAR, Figure 8.4-4.
2. FSAR, Section 6.5.
3. FSAR; Section 8.5.4.
4. FSAR, Chapter 14.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.8.2.3

Performance of a system functional test demonstrates that, with a required system actuation (simulated or actual) signal, the logic of the system will automatically trip open the associated power monitoring assembly. Only one signal per power monitoring assembly is required to be tested. This Surveillance overlaps with the CHANNEL CALIBRATION to provide complete testing of the safety function. The system functional test of the Class 1E contactors is included as part of this test to provide complete testing of the safety function. If the contactors are incapable of operating, the associated electric power monitoring assembly would be inoperable.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency.

REFERENCES

1. FSAR, Section 7.2.3.2.

2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.3.2 (continued)

The 24 month Frequency was developed based on the S/RV tests required by the ASME Boiler and Pressure Vessel Code, Section XI (Ref. 3). Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 4.4.6.
2. FSAR, Section 14.5.1.
3. ASME Boiler and Pressure Vessel Code, Section XI.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.5.4

This SR is for the performance of a CHANNEL CALIBRATION of required leakage detection system instrumentation channels. The calibration verifies the accuracy of the instrument string. The Frequency of 24 months is a typical refueling cycle and considers channel reliability. Operating experience with these components supports performance of the Surveillance at this Frequency.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
2. FSAR, Section 4.10.3.
3. GEAP-5620, "Failure Behavior in ASTM A106B Pipes Containing Axial Through-Wall Flaws," April 1968.
4. NUREG-75/067, "Investigation and Evaluation of Cracking in Austenitic Stainless Steel Piping in Boiling Water Reactors," October 1975.
5. FSAR, Section 4.10.3.2.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8 (continued)

pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.7 and SR 3.5.1.8 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

The Frequency for SR 3.5.1.6 and SR 3.5.1.7 is in accordance with the Inservice Testing Program requirements. The 24 month Frequency for SR 3.5.1.8 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.9

The ECCS subsystems are required to actuate automatically to perform their design functions. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of HPCI, CS, and LPCI will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup and actuation of all automatic valves to their required positions. This SR also ensures that the HPCI System will automatically restart on an RPV low-low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.10

The ADS designated S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to demonstrate that the mechanical portions of the ADS function (i.e., solenoids) operate as designed when initiated either by an actual or simulated initiation signal, causing proper actuation of all the required components. SR 3.5.1.11 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note that excludes valve actuation. This prevents an RPV pressure blowdown.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.11 (continued)

The Frequency of 24 months is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.5.1.12

Verification every 24 months of the automatic transfer capability between the normal and alternate power supply (480 V shutdown boards) for the RMOV boards which supply power for each LPCI subsystem inboard injection valve and each recirculation pump discharge valve demonstrates that AC electrical power is available to operate these valves following loss of power to one of the 4 kV shutdown boards. The ability to provide power to the inboard injection valve and the recirculation pump discharge valve from two independent 4 kV shutdown boards ensures that single failure of an EDG will not result in the failure of both LPCI pumps in one subsystem. Therefore, the failure of the automatic transfer capability will result in the inoperability of the affected LPCI subsystem. The 24 month Frequency has been found to be acceptable based on engineering judgment and operating experience.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

A 92 day Frequency for SR 3.5.3.3 is consistent with the Inservice Testing Program requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.3.5

The RCIC System is required to actuate automatically in order to perform its design function satisfactorily. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of the RCIC System will cause the system to operate as designed, including actuation of the system throughout its emergency operating sequence; that is, automatic pump startup and actuation of all automatic valves to their required positions. This test also ensures the RCIC System will automatically restart on an RPV low-low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.2 overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1.2 (continued)

Satisfactory performance of this SR can be achieved by establishing a known differential pressure between the drywell and the suppression chamber and verifying that the pressure in either the suppression chamber or the drywell does not change by more than 0.25 inch of water per minute over a 10 minute period. The leakage test is performed every 24 months. The 24 month Frequency was developed considering it is prudent that this Surveillance be performed during a unit outage and also in view of the fact that component failures that might have affected this test are identified by other primary containment SRs.

REFERENCES

1. FSAR, Section 5.2.
2. FSAR, Section 14.6.
3. 10 CFR 50, Appendix J, Option B.
4. NEI 94-01, Revision O, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J."
5. ANSI/ANS-56.8-1994, "American National Standard for Containment System Leakage Testing Requirement."
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.7

Automatic PCIVs close on a primary containment isolation signal to prevent leakage of radioactive material from primary containment following a DBA. This SR ensures that each automatic PCIV will actuate to its isolation position on a primary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.1 overlaps this SR to provide complete testing of the safety function. The 24 month Frequency was developed considering it is prudent that this Surveillance be performed only during a unit outage since isolation of penetrations would eliminate cooling water flow and disrupt the normal operation of many critical components. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.6.1.3.8

This SR requires a demonstration that each reactor instrumentation line excess flow check valve (EFCV) is OPERABLE by verifying that the valve actuates to the isolation position on an actual or simulated instrument line break signal. This SR provides assurance that the instrumentation line EFCVs will perform so that the radiological consequences will not exceed the predicted radiological consequences during events evaluated in Reference 5. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.9

The TIP shear isolation valves are actuated by explosive charges. An in place functional test is not possible with this design. The explosive squib is removed and tested to provide assurance that the valves will actuate when required. The replacement charge for the explosive squib shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of the batch successfully fired. The Frequency of 24 months on a STAGGERED TEST BASIS is considered adequate given the administrative controls on replacement charges and the frequent checks of circuit continuity (SR 3.6.1.3.4).

SR 3.6.1.3.10

The analyses in References 1 and 5 are based on leakage that is less than the specified leakage rate. Leakage through each MSIV must be ≤ 11.5 scfh when tested at ≥ P_t (25 psig). This ensures that MSIV leakage is properly accounted for in determining the overall primary containment leakage rate. The Frequency is specified in the Primary Containment Leakage Rate Testing Program.

SR 3.6.1.3.11

Surveillance of water tested lines ensures that sufficient inventory will be available to provide a sealing function for at least 30 days at a pressure of 1.1 Pa. Sufficient inventory ensures there is no path for leakage of primary containment atmosphere to the environment following a DBA. Leakage from containment isolation valves that terminate below the suppression pool water level may be excluded from the total leakage provided a sufficient fluid inventory is available as described in 10 CFR 50, Appendix J, Option B.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)	SR 3.6.1.5.3 Demonstration of vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of ≤ 0.5 psid is valid. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at this Frequency. The 24 month Frequency is further justified because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.
REFERENCES	1. TVA Calculation ND-Q0064-900040. 2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.6.3

Verification of the differential pressure required to open the vacuum breaker is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of 0.5 psid is valid. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. The 24 month Frequency is further justified because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.

REFERENCES

1. FSAR, Section 5.2.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
3. Technical Requirements Manual.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.1.3 and SR 3.6.4.1.4

The SGT System exhausts the secondary containment atmosphere to the environment through appropriate treatment equipment. To ensure that all fission products are treated, SR 3.6.4.1.3 verifies that the SGT System will rapidly establish and maintain a pressure in the secondary containment that is less than the lowest postulated pressure external to the secondary containment boundary. This is confirmed by demonstrating that two SGT subsystems will draw down the secondary containment to ≥ 0.25 inches of vacuum water gauge in ≤ 120 seconds. This cannot be accomplished if the secondary containment boundary is not intact. SR 3.6.4.1.4 demonstrates that two SGT subsystems can maintain ≥ 0.25 inches of vacuum water gauge at a stable flow rate ≤ 12,000 cfm. Both of these SRs are performed under neutral (< 5 mph) wind conditions. Therefore, these two tests are used to ensure secondary containment boundary integrity. Since these SRs are secondary containment tests, they need not be performed with each combination of SGT subsystems. The SGT subsystems are tested on a STAGGERED TEST BASIS, however, to ensure that in addition to the requirements of LCO 3.6.4.3, any two SGT subsystems will perform this test. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 5.3.
2. FSAR, Section 14.6.3.
3. FSAR, Section 14.6.4.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

Verifying that the isolation time of each power operated, automatic SCIV is within limits is required to demonstrate OPERABILITY. The isolation time test ensures that the SCIV will isolate in a time period less than or equal to that assumed in the safety analyses. The Frequency of this SR is 92 days.

SR 3.6.4.2.2

Verifying that each automatic SCIV closes on a secondary containment isolation signal is required to prevent leakage of radioactive material from secondary containment following a DBA or other accidents. This SR ensures that each automatic SCIV will actuate to the isolation position on a secondary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation," overlaps this SR to provide complete testing of the safety function. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 14.6.3.
2. FSAR, Section 14.6.4.
3. Technical Requirements Manual.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.3.3

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

SR 3.6.4.3.4

This SR verifies that the SGT decay heat discharge dampers are in the correct position. This ensures that the decay heat removal mode of SGT System operation is available. Operating experience has shown that these components usually pass the Surveillance when performed at the 12 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 41.
2. FSAR, Section 5.3.3.7.
3. FSAR, Section 14.6.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.2.3

This SR verifies that the EECW System pumps will automatically start to provide cooling water to the required safety related equipment during an accident event. This is demonstrated by the use of an actual or simulated initiation signal. This SR includes a functional test of the initiation logic and a functional test and calibration of the EECW pump timers (both normal power and diesel power).

Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, this Frequency is concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Chapter 5.
2. FSAR, Chapter 14.
3. FSAR, Section 10.10.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.3.3

This SR verifies that on an actual or simulated initiation signal, each CREV subsystem starts and operates. This SR includes verification that dampers necessary for proper CREV operation function as required. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.4 and SR 3.3.7.1.6 overlaps this SR to provide complete testing of the safety function.

SR 3.7.3.4

This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to outdoors is periodically tested to verify proper function of the CREV System. During the emergency mode of operation, the CREV System is designed to slightly pressurize the control room $\geq$ 0.125 inches water gauge positive pressure with respect to the outdoors to prevent unfiltered inleakage. The CREV System is designed to maintain this positive pressure at a flow rate of $\geq$ 2700 cfm and $\leq$ 3300 cfm to the control room in the pressurization mode. The Frequency of 24 months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration systems SRs.

REFERENCES.

1. FSAR, Section 10.12.
2. FSAR, Chapter 10.
3. FSAR, Chapter 14.
4. FSAR, Section 14.6.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS	<u>SR 3.7.4.1</u> This SR verifies that the heat removal capability of the system is sufficient to remove the control room heat load assumed in the safety analyses. The SR consists of a combination of testing and calculation. The 24 month Frequency is appropriate since significant degradation of the Control Room AC System is not expected over this time period.
REFERENCES	1. FSAR, Section 10.12. 2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS

B.1 (continued)

Turbine Bypass System is not required to protect fuel integrity during abnormal operational transients. The 4 hour Completion Time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

Cycling each main turbine bypass valve through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will function when required. The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions. Operating experience has shown that these components usually pass the SR when performed at the 31 day Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

SR 3.7.5.2

The Main Turbine Bypass System is required to actuate automatically to perform its design function. This SR demonstrates that, with the required system initiation signals, the valves will actuate to their required position. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and because of the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown the 24 month Frequency, which is based on the refueling cycle, is acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.5.3

This SR ensures that the TURBINE BYPASS SYSTEM RESPONSE TIME is in compliance with the assumptions of the appropriate safety analysis. The response time limits are specified in the cycle specific transient analyses performed to support the preparation of FSAR, Appendix N, Supplemental Reload Licensing Report (Ref. 4). The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and because of the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown the 24 month Frequency, which is based on the refueling cycle, is acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 7.11.3.3.
2. FSAR, Section 14.5.1.1.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. FSAR, Appendix N.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.5 (continued)

The voltage tolerances specified in this SR are based on the degraded voltage and overvoltage relay settings. The frequency tolerances specified in this SR are derived from Safety Guide 9 (Ref. 3) recommendations for response during load sequence intervals. The voltage and frequency specified are consistent with the design range of the equipment powered by the DG. SR 3.8.1.5.a corresponds to the maximum frequency excursion, while SR 3.8.1.5.b and 3.8.1.5.c are steady state voltage and frequency values to which the system must recover following load rejection. The 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 8).

This SR is modified by a Note. In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, the Note requires that, if synchronized to offsite power, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.

SR 3.8.1.6

This Surveillance demonstrates that the DG automatically starts from the design basis actuation signal (LOCA signal). This test will also verify the start of the Unit 1 and 2 DGs aligned to the SGT and CREV Systems on an accident signal from Unit 3. In order to minimize the number of DGs involved in testing, demonstration of automatic starts of the Unit 1 and 2 DGs on an accident signal from Unit 3 may be performed in conjunction

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.6 (continued)

with testing to demonstrate automatic starts of the Unit 1 and 2 DGs on an accident signal from Unit 1 or 2. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

To minimize wear and tear on the DGs, this SR has been modified by a Note which permits DG starts to be preceded by an engine prelube period followed by a warmup period.

SR 3.8.1.7

Demonstration once per 24 months that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours - 22 hours of which is at a load equivalent to the continuous rating of the DG, and 2 hours of which is at a load equivalent to 105 percent to 110 percent of the continuous duty rating of the DG. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, discussed in SR 3.8.1.1, and for gradual loading, discussed in SR 3.8.1.2, are applicable to this SR.

In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience. A load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.7 (continued)

The 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 8).

This Surveillance has been modified by a Note that states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test.

SR 3.8.1.8

Under accident conditions (and loss of offsite power) loads are sequentially connected to the shutdown boards by automatic individual pump timers. The individual pump timers control the permissive and starting signals to motor breakers to prevent overloading of the DGs due to high motor starting currents. This SR is demonstrated by performance of SR 3.3.5.1.5 for the Core Spray and LPCI pump timers, SR 3.7.2.3 for the EECW pump timers, and SR 3.8.1.9.b for the 480 V load shed logic timers. The allowable values for these timers ensure that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. Reference 2 provides a summary of the automatic loading of ESF shutdown boards.

The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 8).

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.9 (continued)

The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 24 months.

This SR is modified by a Note. The reason for the Note is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

SR 3.8.1.10

This Surveillance is provided to direct that the appropriate Surveillances for the required Unit 1 and 2 DGs are governed by the Unit 1 and 2 Technical Specifications. Performance of the applicable Unit 1 and 2 Surveillances will satisfy any Unit 1 and 2 requirements, as well as this Unit 3 Surveillance requirement. The Frequency required by the applicable Unit 1 and 2 SR also governs performance of that SR for both Units.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.2 and SR 3.8.4.5 (continued)

SR 3.8.4.2 verifies that the chargers are capable of charging the batteries after their designed duty cycle testing and ensures that the chargers will perform their design function. This SR is modified by a Note that allows the performance of SR 3.8.4.5 in lieu of this Surveillance requirement. SR 3.8.4.5 verifies that the chargers are capable of charging the batteries after each discharge test and ensures that the chargers are capable of performing at maximum output. SR 3.8.4.2 is performed at the same frequency as the 24 month service test (SR 3.8.4.3), while SR 3.8.4.5 is performed following the 60 month battery discharge test (SR 3.8.4.4).

SR 3.8.4.5 is modified by a Note. The Note is added to this SR to acknowledge that credit may be taken for unplanned events that satisfy the Surveillance.

SR 3.8.4.3

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length corresponds to the design duty cycle requirements as specified in Reference 4.

The Frequency of 24 months is consistent with the plant conditions required to perform the Surveillance, plus other supporting Surveillance Requirements.

(continued)

BASES (continued)

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6.
3. IEEE Standard 308.
4. FSAR, Sections 8.5 and 8.6.
5. FSAR, Chapters 6 and 14.
6. Regulatory Guide 1.93.
7. IEEE Standard 450-1995.
8. Regulatory Guide 1.32, February 1977.
9. Deleted.
10. IEEE Standard 485, 1983.
11. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.