

Enclosure 10

Edwin I. Hatch Nuclear Plant
Request to Revise Technical Specifications:
18- to 24-Month Fuel Cycle Extension

Marked-Up Bases Pages

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.7.7 (continued)

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. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this Surveillance is in accordance with the Inservice Testing Program.

SR 3.1.7.8 and SR 3.1.7.9

These Surveillances ensure that there is a functioning flow path from the sodium pentaborate 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. The pump and explosive valve tested should be alternated such that both complete flow paths are

48

tested every ~~36~~ months at alternating ~~18~~ month intervals. 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 ~~18~~ month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

24

Insert A →

Demonstrating that all heat traced piping between the sodium pentaborate 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 test tank.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.7.8 and SR 3.1.7.9 (continued)

The ~~48~~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 heat traced piping. This is especially true in light of the temperature verification of this piping required by SR 3.1.7.3.

However, if, in performing SR 3.1.7.3, it is determined that the temperature of this piping has fallen below the specified minimum, SR 3.1.7.9 must be performed once within 24 hours after the piping temperature is restored to within the Region A limits of Figure 3.1.7-2. *Insert B*

SR 3.1.7.10

Enriched sodium pentaborate solution is made by mixing granular, enriched sodium pentaborate with water. Isotopic tests on the granular sodium pentaborate to verify the actual B-10 enrichment must be performed prior to addition to the SLC tank in order to ensure that the proper B-10 atom percentage is being used.

REFERENCES

1. 10 CFR 50.62.
2. FSAR, Section 3.8.4.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert C
(Reference 4) →

Section B 3.1.7 Inserts

Insert A:

The 24 month Frequency of SR 3.1.7.8 is based on a review of the surveillance test history and Reference 4.

Insert B:

The 24 month Frequency of SR 3.1.7.9 is based on a review of the surveillance test history and Reference 4.

Insert C:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.8.3 (continued)

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 ~~18~~ ²⁴ month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert A →

REFERENCES

1. FSAR, Section 3.4.5.3.1.
2. 10 CFR 100.
3. NUREG-0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping," August 1981.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 5) →

Section B 3.1.8 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

7.a. and 7.b. Scram Discharge Volume Water Level — High
(continued)

Four channels of each type of Scram Discharge Volume Water Level — High Function, with two channels of each type in each trip system, are required to be OPERABLE to ensure that no single instrument failure will preclude a scram from these Functions on a valid signal. These Functions are required in MODES 1 and 2, and in MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies, since these are the MODES and other specified conditions when control rods are withdrawn. At all other times, this Function may be bypassed.

8. Turbine Stop Valve — Closure

Closure of the TSVs results in the loss of a heat sink that produces reactor pressure, neutron flux, and heat flux transients that must be limited. Therefore, a reactor scram is initiated on a TSV—Closure signal before the TSVs are completely closed in anticipation of the transients that would result from the closure of these valves. The Turbine Stop Valve — Closure Function is the primary scram signal for the turbine trip event analyzed in Reference 2. For this event, the reactor scram reduces the amount of energy required to be absorbed and, along with the actions of the End of Cycle Recirculation Pump Trip (EOC-RPT) System, ensures that the MCPRL SL is not exceeded.

Turbine Stop Valve — Closure signals are initiated from position switches located on each of the four TSVs. Two independent position switches are associated with each stop valve. One of the two switches provides input to RPS trip system A; the other, to RPS trip system B. Thus, each RPS trip system receives an input from four Turbine Stop Valve — Closure channels, each consisting of one position switch. The logic for the Turbine Stop Valve — Closure Function is such that three or more TSVs must be closed to produce a scram. In addition, certain combinations of two valves closed will result in a half-scram. This Function must be enabled at THERMAL POWER \geq 28% RTP. This is normally accomplished automatically by pressure ~~transmitters~~ sensing turbine first stage pressure; therefore, opening of the turbine bypass valves may affect this Function.

switches

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

8. Turbine Stop Valve — Closure (continued)

The Turbine Stop Valve — Closure Allowable Value is selected to be high enough to detect imminent TSV closure, thereby reducing the severity of the subsequent pressure transient.

Eight channels of Turbine Stop Valve — Closure Function, with four channels in each trip system, are required to be OPERABLE to ensure that no single instrument failure will preclude a scram from this Function if the TSVs should close. This Function is required, consistent with analysis assumptions, whenever THERMAL POWER is $\geq 28\%$ RTP. This Function is not required when THERMAL POWER is $< 28\%$ RTP since the Reactor Vessel Steam Dome Pressure — High and the Average Power Range Monitor Neutron Flux — High Functions are adequate to maintain the necessary safety margins.

9. Turbine Control Valve Fast Closure, Trip Oil Pressure — Low

Fast closure of the TCVs results in the loss of a heat sink that produces reactor pressure, neutron flux, and heat flux transients that must be limited. Therefore, a reactor scram is initiated on TCV fast closure in anticipation of the transients that would result from the closure of these valves. The Turbine Control Valve Fast Closure, Trip Oil Pressure — Low Function is the primary scram signal for the generator load rejection event analyzed in Reference 2. For this event, the reactor scram reduces the amount of energy required to be absorbed and, along with the actions of the EOC-RPT System, ensures that the MCPR SL is not exceeded.

switch — Turbine Control Valve Fast Closure, Trip Oil Pressure — Low signals are initiated by the electrohydraulic control (EHC) fluid pressure at each control valve. One pressure transmitter is associated with each control valve, and the signal from each transmitter is assigned to a separate RPS logic channel. This Function must be enabled at THERMAL POWER $\geq 28\%$ RTP. This is normally accomplished automatically by pressure transmitters sensing turbine first stage pressure; therefore, opening of the turbine bypass valves may affect this Function.

switches

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.1.1.9 and SR 3.3.1.1.12

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 92 day Frequency of SR 3.3.1.1.9 is based on the reliability analysis of Reference 9.

²⁴ of SR 3.3.1.1.12
The ~~18~~ 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.

Insert A → Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.

SR 3.3.1.1.10

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. For the APRM Functions, this test supplements the automatic self-test functions that operate continuously in the APRM and voter channels. The APRM CHANNEL FUNCTIONAL TEST covers the APRM channels (including recirculation flow processing — applicable to Function 2.b only), the two-out-of-four voter channels, and the interface connections to the RPS trip systems from the voter channels. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. The 184 day Frequency of SR 3.3.1.1.10 is based on the reliability analysis of References 12 and 16. (NOTE: The actual voting logic of the two-out-of-four voter channels is tested as part of SR 3.3.1.1.15.)

For Function 2.a, a Note that requires this SR to be performed within 12 hours of entering MODE 2 from MODE 1 is provided. Testing of the MODE 2 APRM Function cannot be performed in MODE 1 without utilizing jumpers or lifted leads. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2.

(continued)

BASES

**SURVEILLANCE
REQUIREMENTS**
(continued)

SR 3.3.1.1.11

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 $\geq 28\%$ RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from turbine first stage pressure), the main turbine bypass valves must remain closed during the calibration at THERMAL POWER $\geq 28\%$ RTP to ensure that the calibration is valid.

If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at $\geq 28\%$ 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.

Insert B → *The Frequency of 184 days is based on engineering judgment and reliability of the components.*

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 MSIV — Closure, SDV Water Level — High (Float Switch), and TSV — Closure Functions, this SR also includes a physical inspection and actuation of the switches. For the APRM Simulated Thermal Power — High Function, this SR also includes calibrating the associated recirculation loop flow channel.

(continued)

BASES

SURVEILLANCE
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SR 3.3.1.1.13 (continued)

Note 1 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 effective full power hours LPRM calibration against the TIPs (SR 3.3.1.1.8). A second Note 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.

Insert C →

The Frequency of SR 3.3.1.1.13 is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.1.1.14

(Not used.)

SR 3.3.1.1.15

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.

²⁴
The ~~18~~ 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.

Insert D →

Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.15 (continued)

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

SR 3.3.1.1.16

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. This test may be performed in one measurement or in overlapping segments, with verification that all components are tested. The RPS RESPONSE TIME acceptance criteria are included in Reference 10.

RPS RESPONSE TIME for APRM Two-out-of-Four Voter Function 2.e includes the output relays of the voter and the associated RPS relays and contactors. (The digital portions of the APRM and two-out-of-four voter channels are excluded from RPS RESPONSE TIME testing because self-testing and calibration check the time base of the digital electronics.) Confirmation of the time base is adequate to assure required response times are met. Neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

RPS RESPONSE TIME tests are conducted on ^{a 24}~~47/18~~ month STAGGERED TEST BASIS. This Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

→ Insert E

SR 3.3.1.1.17

This SR ensures that scrams initiated from OPRM Upscale Function 2.f will not be inadvertently bypassed when THERMAL POWER, as indicated by APRM Simulated Thermal Power, is $\geq 25\%$ RTP and core flow, as indicated by recirculation drive flow, is $< 60\%$ rated core flow. This normally involves

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BASES

SURVEILLANCE
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SR 3.3.1.1.17 (continued)

confirming the bypass setpoints. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. The actual Surveillance ensures that the OPRM Upscale Function is enabled (not bypassed) for the correct values of APRM Simulated Thermal Power and recirculation drive flow. Other Surveillances ensure that the APRM Simulated Thermal Power and recirculation flow properly correlate with THERMAL POWER and core flow, respectively.

If any bypass setpoint is nonconservative (i.e., the OPRM Upscale Function is bypassed when APRM Simulated Thermal Power is $\geq 25\%$ and recirculation drive flow is $< 60\%$ rated), the affected channel is considered inoperable for the OPRM Upscale Function. Alternatively, the bypass setpoint may be adjusted to place the channel in a conservative condition (unbypass). If placed in the unbypass condition, this SR is met and the channel is considered OPERABLE.

Insert F →

The 18 month Frequency is based on engineering judgment and component reliability.

REFERENCES

1. FSAR, Section 7.2.
2. FSAR, Chapter 14.
3. FSAR, Section 6.5.
4. FSAR, Appendix M.
5. FSAR, Section 14.3.3.
6. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.
7. FSAR, Sections 14.4.2 and 14.5.5.
8. P. Check (NRC) letter to G. Lainas (NRC), "BWR Scram Discharge System Safety Evaluation," December 1, 1980.

(continued)

BASES

REFERENCES
(continued)

9. NEDO-30851-P-A, "Technical Specification Improvement Analyses for BWR Reactor Protection System," March 1988.
10. Technical Requirements Manual.
11. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
12. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.
13. NEDO-31960-A, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.
14. NEDO-31960-A, Supplement 1, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.
15. NEDO-32465-A, "BWR Owners' Group Long-Term Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications," March 1996.
16. NEDO-32410P-A, Supplement 1, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," November 1997.
17. Letter, L.A. England (BWROG) to M.J. Virgilio, "BWR Owners' Group Guidelines for Stability Interim Corrective Action," June 6, 1994.

*Insert G
(Reference 18)* →

Section B 3.3.1.1 Inserts

Insert A:

The 24 month Frequency of SR 3.3.1.1.12 is based on a review of the surveillance test history and Reference 18.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation, and Reference 18.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 18.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 18.

Insert E:

The 24 month Frequency, on a STAGGERED TEST BASIS, is also based on a review of the surveillance test history and Reference 18.

Insert F:

The 24 month Frequency is based on a review of the surveillance test history and Reference 18.

Insert G:

18. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6 (continued)

sufficiently removed from the fueled region of the core to essentially eliminate neutrons from reaching the detector. Any count rate obtained while the detectors are fully withdrawn is assumed to be "noise" only.

The Note to the SR 3.3.1.2.6 allows the Surveillance to be delayed until entry into the specified condition of the Applicability (THERMAL POWER decreased to IRM Range 2 or below). The SR must be performed within 12 hours after IRMs are on Range 2 or below. The allowance to enter the Applicability with the 31 day Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels.

Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. In this event, the 12 hour Frequency is reasonable, based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

SR 3.3.1.2.7

24 ~~18~~ months verifies the performance of the SRM detectors and associated circuitry. The Frequency considers the plant conditions required to perform the test, the ease of performing the test, and the likelihood of a change in the system or component status. The neutron detectors are excluded from the CHANNEL CALIBRATION (Note 1) because they cannot readily be adjusted. The detectors are fission chambers that are designed to have a relatively constant sensitivity over the range and with an accuracy specified for a fixed useful life.

Insert A —

Note 2 to the Surveillance allows the Surveillance to be delayed until entry into the specified condition of the Applicability. The SR must be performed in MODE 2 within 12 hours of entering MODE 2 with IRMs on Range 2 or below. The allowance to enter the Applicability with the ~~18~~ month Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the 24

(continued)

BASES

SURVEILLANCE
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SR 3.3.1.2.7 (continued)

inability to perform the Surveillance while at higher power levels. Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. In this event, the 12 hour Frequency is reasonable, based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

REFERENCES

Insert B
(Reference 2) →

1. NRC Safety Evaluation Report for Amendment 185, April 30, 1993.
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Section B 3.3.1.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 2.

Insert B:

2. NRC Safety Evaluation Report for Amendment ____.

BASES

BACKGROUND
(continued)

is also automatically bypassed if a peripheral control rod is selected (Ref. 1). A rod block signal is also generated if an RBM Downscale trip or an Inoperable trip occurs. The Downscale trip will occur if the RBM channel signal decreases below the Downscale trip setpoint after the RBM signal has been normalized. The Inoperable trip will occur during the nulling (normalization) sequence, if: the RBM channel fails to null, too few LPRM inputs are available, a module is not plugged in, or the function switch is moved to any position other than "Operate."

The purpose of the RWM is to control rod patterns during startup and shutdown, such that only specified control rod sequences and relative positions are allowed over the operating range from all control rods inserted to 10% RTP. The sequences effectively limit the potential amount and rate of reactivity increase during a CRDA. Prescribed control rod sequences are stored in the RWM, which will initiate control rod withdrawal and insert blocks when the actual sequence deviates beyond allowances from the stored sequence. The RWM determines the actual sequence based position indication for each control rod. The RWM also uses ~~feedwater flow and steam flow~~ **APRM Power** signals to determine when the reactor power is above the preset power level at which the RWM is automatically bypassed (Ref. 2). The RWM is a single channel system that provides input into both RMCS rod block circuits.

With the reactor mode switch in the shutdown position, a control rod withdrawal block is applied to all control rods to ensure that the shutdown condition is maintained. This Function prevents inadvertent criticality as the result of a control rod withdrawal during MODE 3 or 4, or during MODE 5 when the reactor mode switch is required to be in the shutdown position. The reactor mode switch has two channels, each inputting into a separate RMCS rod block circuit. A rod block in either RMCS circuit will provide a control rod block to all control rods.

(continued)

BASES

SURVEILLANCE
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SR 3.3.2.1.4 (continued)

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 3.3.1.1.8. *The 18 month frequency is based on the actual trip setpoint methodology utilized for these channels.*

Insert A →

SR 3.3.2.1.5

The RWM is automatically bypassed when power is above a specified value. The power level is determined from *APRM Power* ~~feedwater flow and steam flow~~ signals. The automatic bypass setpoint must be verified periodically to be $\geq 10\%$ 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.*

APRM Power →

Insert B →

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

(continued)

BASES

SURVEILLANCE
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SR 3.3.2.1.6 (continued)

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 18 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 SR.

²⁴
The ~~18~~ 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.

Insert C →

~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.~~

SR 3.3.2.1.7

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 3.3.1.1.8.

Insert D →

~~The Frequency is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.2.1.8

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

(continued)

BASES

SURVEILLANCE
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SR 3.3.2.1.8 (continued)

OPERABLE following loading of sequence into RWM, since this is when rod sequence input errors are possible.

REFERENCES

1. FSAR, Section 7.5.8.2.3.
2. FSAR, Section 7.2.2.4.
3. NEDC-30474-P, "Average Power Range Monitor, Rod Block Monitor, and Technical Specification Improvements (ARTS) Program for Edwin I. Hatch Nuclear Plants," December 1983.
4. NEDE-24011-P-A-US, "General Electrical Standard Application for Reload Fuel," Supplement for United States, (revision specified in the COLR).
5. Letter from T.A. Pickens (BWROG) to G.C. Lainas (NRC), "Amendment 17 to General Electric Licensing Topical Report NEDE-24011-P-A," BWROG-8644, August 15, 1986.
6. NEDO-21231, "Banked Position Withdrawal Sequence," January 1977.
7. NRC SER, "Acceptance of Referencing of Licensing Topical Report NEDE-24011-P-A," "General Electric Standard Application for Reactor Fuel, Revision 8, Amendment 17," December 27, 1987.
8. NEDC-30851-P-A, "Technical Specification Improvement Analysis for BWR Control Rod Block Instrumentation," October 1988.
9. GENE-770-06-1, "Bases For Changes To Surveillance Test Intervals and Allowed Out-Of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
10. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
11. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.

Insert E
(Reference 12) →

Section B 3.3.2.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 12.

Insert B:

The 24 month Frequency is based on Reference 12.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 12.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 12.

Insert E:

12. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

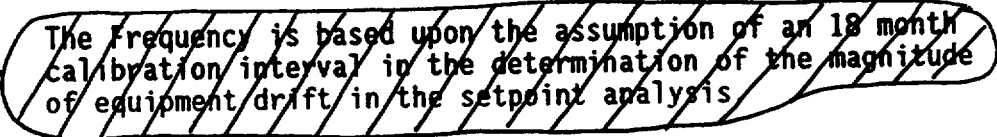
SR 3.3.2.2.1 (continued)

logic from the input of the alarm unit. This is consistent with the CHANNEL FUNCTIONAL TEST definition requiring the signal to be injected "as close to the sensor as practicable." Additionally, due to the physical location of the turbine trip relays and their close proximity to other sensitive equipment, accessibility is extremely limited. Verification of relay actuation and associated relay contact status by accessing the relay introduces a high potential for turbine trip and reactor scram. One contact from each turbine trip relay energizes an amber light indicating relay actuation. Therefore, it is acceptable to terminate the test at the turbine trip relay, utilizing light indication for relay status. These allowances are only acceptable if the CHANNEL CALIBRATION and the LOGIC SYSTEM FUNCTIONAL TEST overlap both the initiation and termination point of this CHANNEL FUNCTIONAL TEST such that the entire trip logic is tested.

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

SR 3.3.2.2.2

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.

Insert A → The Frequency is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis

SR 3.3.2.2.3

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.2.3 (continued)

complete testing of the assumed safety function. Therefore, if a valve is incapable of operating, the associated instrumentation channels would also be inoperable. The 24 ~~18~~ 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.

Insert B → ~~Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.~~

REFERENCES

1. FSAR, Section 14.3.2.1.
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.

Insert C —
(Reference 4) →

Section B 3.3.2.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 4.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert C:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.3.1.2

A CHANNEL CALIBRATION is performed every ²⁴~~18~~ months. ~~or~~
~~approximately at every refueling.~~ 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.

Insert A →

~~The Frequency is based on operating experience and
consistency with the typical industry refueling cycles.~~

REFERENCES

1. Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," Revision 2, December 1980.
2. NRC Safety Evaluation Report, "Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2, Conformance to Regulatory Guide 1.97," dated July 30, 1985.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 4) →

Section B 3.3.3.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert B:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.3.2.1 (continued)

something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. As specified in the Surveillance, a CHANNEL CHECK is only required for those channels that are normally energized.

The Frequency is based upon plant operating experience that demonstrates channel failure is rare.

SR 3.3.3.2.2

SR 3.3.3.2.2 verifies each required Remote Shutdown System transfer switch and control circuit performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of equipment from the remote shutdown panel is not necessary. The Surveillance can be satisfied by performance of a continuity check, or, in the case of the DG controls, the routine Surveillances of LCO 3.8.1 (since local control is utilized during the performance of some of the Surveillances of LCO 3.8.1). This will ensure that if the control room becomes inaccessible, the plant can be placed and maintained in MODE 3 from the remote shutdown panel and the local control stations. The 18 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 demonstrates that Remote Shutdown System controls usually pass the Surveillance when performed at the 18 month Frequency.

24
Insert A →

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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.

Insert B →

The 18 month Frequency is based upon operating experience and consistency with the typical industry refueling cycle.

REFERENCES

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

Insert C
(Reference 4) →

Section B 3.3.3.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert C:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY
(continued)

Turbine Stop Valve — Closure

Closure of the TSVs and a main turbine trip result in the loss of a heat sink and increases reactor pressure, neutron flux, and heat flux that must be limited. Therefore, an RPT is initiated on a TSV — Closure signal before the TSVs are completely closed in anticipation of the effects that would result from closure of these valves. EOC-RPT decreases reactor power and aids the reactor scram in ensuring that the MCPR SL is not exceeded during the worst case transient.

Closure of the TSVs is determined by measuring the position of each valve. While there are two separate position switches associated with each stop valve, only the signal from one switch for each TSV is used, with each of the four channels being assigned to a separate trip channel. The logic for the TSV — Closure Function is such that two or more TSVs must be closed to produce an EOC-RPT. This Function must be enabled at THERMAL POWER \geq 28% RTP. This is normally accomplished automatically by pressure ~~transmitters~~ *switches* sensing turbine first stage pressure; therefore, opening of the turbine bypass valves may affect this Function. Four channels of TSV — Closure, with two channels in each trip system, are available and required to be OPERABLE to ensure that no single instrument failure will preclude an EOC-RPT from this Function on a valid signal. The TSV — Closure Allowable Value is selected to detect imminent TSV closure.

This protection is required, consistent with the safety analysis assumptions, whenever THERMAL POWER is \geq 28% RTP. Below 28% RTP, the Reactor Vessel Steam Dome Pressure — High and the Average Power Range Monitor (APRM) Fixed Neutron Flux — High Functions of the Reactor Protection System (RPS) are adequate to maintain the necessary margin to the MCPR Safety Limit.

Turbine Control Valve Fast Closure, Trip Oil Pressure — Low

Fast closure of the TCVs during a generator load rejection results in the loss of a heat sink that produces reactor pressure, neutron flux, and heat flux transients that must be limited. Therefore, an RPT is initiated on TCV Fast Closure, Trip Oil Pressure — Low in anticipation of the transients that would result from the closure of these

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

Turbine Control Valve Fast Closure, Trip Oil Pressure — Low
(continued)

valves. The EOC-RPT decreases reactor power and aids the reactor scram in ensuring that the MCPR SL is not exceeded during the worst case transient.

Fast closure of the TCVs is determined by measuring the electrohydraulic control fluid pressure at each control valve. There is one pressure ~~transmitter~~ associated with each control valve, and the signal from each ~~transmitter~~ is assigned to a separate trip channel. The logic for the TCV Fast Closure, Trip Oil Pressure — Low Function is such that two or more TCVs must be closed (pressure transmitter trips) to produce an EOC-RPT. This Function must be enabled at THERMAL POWER \geq 28% RTP. This is normally accomplished automatically by pressure ~~transmitters~~ sensing turbine first stage pressure; therefore, opening of the turbine bypass valves may affect this Function. Four channels of TCV Fast Closure, Trip Oil Pressure — Low, with two channels in each trip system, are available and required to be OPERABLE to ensure that no single instrument failure will preclude an EOC-RPT from this Function on a valid signal. The TCV Fast Closure, Trip Oil Pressure — Low Allowable Value is selected high enough to detect imminent TCV fast closure.

switches

switch

This protection is required consistent with the safety analysis whenever THERMAL POWER is \geq 28% RTP. Below 28% RTP, the Reactor Vessel Steam Dome Pressure — High and the APRM Fixed Neutron Flux — High Functions of the RPS are adequate to maintain the necessary margin to the MCPR Safety Limit.

ACTIONS

A Note has been provided to modify the ACTIONS related to EOC-RPT instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable EOC-RPT instrumentation channels provide

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the recirculation pumps will trip when necessary.

SR 3.3.4.1.1

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 of Reference 4.

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 $\geq 28\%$ RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from first stage pressure) the main turbine bypass valves must remain closed during the calibration at THERMAL POWER $\geq 28\%$ RTP to ensure that the calibration is valid. If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at $\geq 28\%$ 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 (Turbine Stop Valve—Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure—Low Functions are enabled), this SR is met with the channel considered OPERABLE.

Insert A → The Frequency of 184 days is based on engineering judgment and reliability of the components.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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. For the TSV - Closure Function, this SR also includes a physical inspection and actuation of the switches.

Insert B →

~~The frequency is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

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.

²⁴
The ~~18~~ 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.

Insert C →

~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.~~

SR 3.3.4.1.5

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The EOC-RPT SYSTEM RESPONSE TIME acceptance criteria are included in Reference 5.

A Note to the Surveillance states that breaker interruption (i.e., trip) time may be assumed from the most recent performance of SR 3.3.4.1.6. This is allowed since the time

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.4.1.5 (continued)

to open the contacts after energization of the trip coil and the arc suppression time are short and do not appreciably change, due to the design of the breaker opening device and the fact that the breaker is not routinely cycled.

EOC-RPT SYSTEM RESPONSE TIME tests are conducted on an 24 ~~18~~ month STAGGERED TEST BASIS. Response times cannot be determined at power because operation of final actuated devices is required. Therefore, this Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components that cause serious response time degradation, but not channel failure, are infrequent occurrences.

Insert D

SR 3.3.4.1.6

This SR ensures that the RPT breaker interruption time is provided to the EOC-RPT SYSTEM RESPONSE TIME test. Breaker interruption (i.e., trip) time is defined as breaker response time plus arc suppression time. Breaker response time is the time from application of voltage to the trip coil until the main contacts separate. Arc suppression time is the time from main contact separation until the complete suppression of the electrical arc across the open contacts. Breaker response shall be verified by testing and added to the manufacturer's design arc suppression time to determine breaker interruption time. The breaker arc suppression time shall be validated by the performance of periodic contact gap measurements in accordance with plant procedures. The 60 month Frequency of the testing is based on the difficulty of performing the test and the reliability of the circuit breakers.

REFERENCES

1. FSAR, Section 7.17.
2. FSAR, Section 14.3.1.
3. Unit 2 FSAR, Sections 5.5.16.1 and 7.6.10.

(continued)

BASES

REFERENCES
(continued)

4. GENE-770-06-1, "Bases For Changes To Surveillance Test Intervals And Allowed Out-Of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
5. Technical Requirements Manual.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert E
(Reference 7) →

Section B 3.3.4.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation, and Reference 7.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation (if applicable), and Reference 7.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 7.

Insert D:

The 24 month Frequency, on a STAGGERED TEST BASIS, is also based on a review of the surveillance test history and Reference 7.

Insert E:

7. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.4.2.1 (continued)

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

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

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.

Insert A → ~~The Frequency is based upon the assumption of an 18 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.

24

The ~~18~~ 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.

Insert B →

~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.~~

REFERENCES

1. FSAR, Section 7.23.
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.

Insert C
(Reference 4) →

Section B 3.3.4.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 4.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert C:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

3.e. Suppression Pool Water Level — High (continued)

HPCI is to be utilized, since the long term use of HPCI during a DBA requires the HPCI suction source to be the suppression pool. As such, this Function meets Criterion 4 of the NRC Policy Statement (Ref. 6).

transmitters

Suppression Pool Water Level — High signals are initiated from two level ~~switches~~. The Allowable Value for the Suppression Pool Water Level — High Function is chosen to ensure that HPCI will be aligned for suction from the suppression pool before the water level reaches the point at which suppression pool design loads would be exceeded.

Two channels of Suppression Pool Water Level — High Function are required to be OPERABLE only when HPCI is required to be OPERABLE to ensure that no single instrument failure can preclude HPCI swap to suppression pool source. Refer to LCO 3.5.1 for HPCI Applicability Bases.

3.f. High Pressure Coolant Injection Pump Discharge Flow — Low (Bypass)

The minimum flow instruments are provided to protect the HPCI pump from overheating when the pump is operating and the associated injection valve is not fully open. The minimum flow line valve is opened when low flow is sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump. While HPCI is not assumed to be OPERABLE in any DBA or transient analysis, the High Pressure Coolant Injection Pump Discharge Flow — Low Function is capable of closing the minimum flow valve to ensure that the HPCI flow provided, if HPCI is utilized during the transients and accidents analyzed in References 1, 2, and 3, is adequate. The core cooling function of the ECCS, along with the scram action of the RPS, ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46. Therefore, this Function meets Criterion 4 of the NRC Policy Statement (Ref. 6).

One flow transmitter is used to detect the HPCI System's flow rate. The logic is arranged such that the transmitter causes the minimum flow valve to open. The logic will close the minimum flow valve once the closure setpoint is exceeded.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.5.1.2 and SR 3.3.5.1.3

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.

92 day Frequency
of SR 3.3.5.1.2

The ~~Frequency of 92 days~~ is based on the reliability analyses of Reference 5. ~~Insert A~~

~~SR 3.3.5.1.3 and SR 3.3.5.1.4~~

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.

Insert B →

~~The Frequency of SR 3.3.5.1.3 and SR 3.3.5.1.4 is based upon the assumption of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.5.1.5

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, LCO 3.8.1, and LCO 3.8.2 overlaps this Surveillance to complete testing of the assumed safety function.

²⁴
The ~~18~~ 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.

Insert C →

~~Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.~~

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 4.8.
2. FSAR, Section 6.5.
3. FSAR, Chapter 14.4.
4. - NEDC-31376-P, "Edwin I. Hatch Nuclear Power Plant, SAFER/GESTR-LOCA, Loss-of-Coolant Accident Analysis," December 1986.
5. NEDC-30936-P-A, "BWR Owners' Group Technical Specification Improvement Analyses for ECCS Actuation Instrumentation, Part 2," December 1988.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert D
(Reference 7) →

Section B 3.3.5.1 Inserts

Insert A:

The 24 month Frequency of SR 3.3.5.1.3 is based on a review of the surveillance test history and Reference 7.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 7.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 7.

Insert D:

7. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.5.2.1 (continued)

channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

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

SR 3.3.5.2.2 and SR 3.3.5.2.3

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.

92 day Frequency
of SR 3.3.5.2.2

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

~~SR 3.3.5.2.3 and SR 3.3.5.2.4~~

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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

~~SR 3.3.5.2.3 and SR 3.3.5.2.4 (continued)~~

Insert B →

~~The Frequency of SR 3.3.5.2.3 and SR 3.3.5.2.4 is based upon the assumption of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.5.2.5

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.

²⁴
The ~~18~~ 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.

Insert C →

~~Operating experience has shown that these components usually pass the Surveillance when performed at the 18 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.

Insert D
(Reference 3) →

Section B 3.3.5.2 Inserts

Insert A:

The 24 month Frequency of SR 3.3.5.2.3 is based on a review of the surveillance test history and Reference 3.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 3.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 3.

Insert D:

3. NRC Safety Evaluation Report for Amendment ____.

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

1.b. Main Steam Line Pressure — Low (continued)

the closure of the MSIVs ensures that the RPV temperature change limit (100°F/hr) is not reached. In addition, this Function supports actions to ensure that Safety Limit 2.1.1.1 is not exceeded. (This Function closes the MSIVs prior to pressure decreasing below 785 psig, which results in a scram due to MSIV closure, thus reducing reactor power to < 25% RTP.)

switches → The MSL low pressure signals are initiated from four ~~transmitters~~ *switch* that are connected to the MSL header. The ~~transmitters~~ are arranged such that, even though physically separated from each other, each ~~transmitter~~ is able to detect low MSL pressure. Four channels of Main Steam Line Pressure — Low Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value was selected to be high enough to prevent excessive RPV depressurization.

The Main Steam Line Pressure — Low Function is only required to be OPERABLE in MODE 1 since this is when the assumed transient can occur (Ref. 2).

This Function isolates the Group 1 valves.

1.c. Main Steam Line Flow — High

Main Steam Line Flow — High is provided to detect a break of the MSL and to initiate closure of the MSIVs. If the steam were allowed to continue flowing out of the break, the reactor would depressurize and the core could uncover. If the RPV water level decreases too far, fuel damage could occur. Therefore, the isolation is initiated on high flow to prevent or minimize core damage. The Main Steam Line Flow — High Function is directly assumed in the analysis of the main steam line break (MSLB) (Ref. 2). The isolation action, along with the scram function of the Reactor Protection System (RPS), ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46 and offsite doses do not exceed the 10 CFR 100 limits.

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

1.c. Main Steam Line Flow — High (continued)

The MSL flow signals are initiated from 16 transmitters that are connected to the four MSLs. The transmitters are arranged such that, even though physically separated from each other, all four connected to one MSL would be able to detect the high flow. Four channels of Main Steam Line Flow — High Function for each unisolated MSL (two channels per trip system) are available and are required to be OPERABLE so that no single instrument failure will preclude detecting a break in any individual MSL.

The Allowable Value is chosen to ensure that offsite dose limits are not exceeded due to the break. The Allowable Value corresponds to ≤ 150 psid, which is the parameter monitored on control room instruments.

This Function isolates the Group 1 valves.

1.d. Condenser Vacuum — Low

The Condenser Vacuum — Low Function is provided to prevent overpressurization of the main condenser in the event of a loss of the main condenser vacuum. Since the integrity of the condenser is an assumption in offsite dose calculations, the Condenser Vacuum — Low Function is assumed to be OPERABLE and capable of initiating closure of the MSIVs. The closure of the MSIVs is initiated to prevent the addition of steam that would lead to additional condenser pressurization and possible rupture of the diaphragm installed to protect the turbine exhaust hood, thereby preventing a potential radiation leakage path following an accident.

Condenser vacuum pressure signals are derived from four pressure ~~transmitters~~ ^{switches} that sense the pressure in the condenser. Four channels of Condenser Vacuum — Low Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value is chosen to prevent damage to the condenser due to pressurization, thereby ensuring its integrity for offsite dose analysis. As noted (footnote (a) to Table 3.3.6.1-1), the channels are not required to be

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the PCIVs will isolate the penetration flow path(s) when necessary.

SR 3.3.6.1.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Frequency is based on 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 3.3.6.1.2 and ~~SR 3.3.6.1.4~~

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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.6.1.2 and SR 3.3.6.1.4 (continued)

The 92 day Frequency of SR 3.3.6.1.2 is based on the reliability analysis described in References 4 and 5. The 184 day Frequency of SR 3.3.6.1.4 is based on engineering judgment and the reliability of the components (time delay relays exhibit minimal drift).

, SR 3.3.6.1.4

SR 3.3.6.1.3 and SR 3.3.6.1.5

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 Frequency of SR 3.3.6.1.3 and SR 3.3.6.1.5 is based on the assumption of the magnitude of equipment drift in the setpoint analysis.

Insert A

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 PCIv's in LCO 3.6.1.3 overlaps this Surveillance to provide complete testing of the assumed safety function. The 24-18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.

Insert B

(continued)

BASES (continued)

-
- | | |
|------------|--|
| REFERENCES | 1. FSAR, Section 5.2. |
| | 2. FSAR, Chapter 14. |
| | 3. FSAR, Section 3.8.3. |
| | 4. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990. |
| | 5. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989. |
| | 6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993. |
-

Insert C
(Reference 7) →

Section B 3.3.6.1 Inserts

Insert A:

The 184 day Frequency of SR 3.3.6.1.4 and the 24 month Frequency of SR 3.3.6.1.5 are based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 7.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 7.

Insert C:

7. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.6.2.3 and SR 3.3.6.2.4

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.

The Frequencies^y of SR 3.3.6.2.3 ~~and SR 3.3.6.2.4~~^{is} are based on the assumption of the magnitude of equipment drift in the setpoint analysis. ~~Insert A~~

SR 3.3.6.2.5

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.

~~This~~
~~While this~~ Surveillance can be performed with the reactor at power for some of the Functions, operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

Insert B →

REFERENCES

1. FSAR, Section 5.2.
2. FSAR, Chapter 14.4.
3. FSAR, Sections 14.4.5 and 14.5.4.
4. FSAR, Sections 14.4.3, 14.4.4, 14.5.2, and 14.5.3.
5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.

(continued)

BASES

REFERENCES
(continued)

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.

Insert C
(Reference 8) →

Section B 3.3.6.2 Inserts

Insert A:

The 24 month Frequency of SR 3.3.6.2.4 is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 8.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert C:

8. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.6.3.2, SR 3.3.6.3.3, and SR 3.3.6.3.4 (continued)

A portion of the S/RV tailpipe pressure switch instrument channels are located inside the primary containment. The Note for SR 3.3.6.3.3, "Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment," is based on the location of these instruments, ALARA considerations, and compatibility with the Completion Time of the associated Required Action (Required Action B.1).

SR 3.3.6.3.5

CHANNEL CALIBRATION is a complete check of the instrument loop and 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.

Insert A → The Frequency of once every 18 months for SR 3.3.6.3.5 is based on the assumption of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.6.3.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specified channel. The system functional testing performed in LCO 3.4.3, "Safety/Relief Valves(S/RVs) and LCO 3.6.1.8, "Low-Low Set (LLS) Safety/Relief Valves (S/RVs)," for S/RVs overlaps this test to provide complete testing of the assumed safety function.

Insert B → The Frequency of once every ²⁴~~18~~ months for SR 3.3.6.3.6 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.

(continued)

BASES (continued)

- REFERENCES
1. FSAR, Section 7.19.
 2. FSAR, Section 4.11.
 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. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
-

Insert C
(Reference 5) →

Section B 3.3.6.3 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 5.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert C:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.7.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.7.4, "Main Control Room Environmental Control (MCREC) System," overlaps this Surveillance to provide complete testing of the assumed safety function.

Insert A → ^{*This*} ~~While this~~ Surveillance can be performed with the reactor at power, operating experience has shown these components usually pass the Surveillance when performed at the 18 month frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

REFERENCES

1. Unit 2 FSAR, Section 7.3.5
2. FSAR, Section 5.2.
3. Unit 2 FSAR, Section 6.4.1.2.2.
4. FSAR, Chapter 14.
5. Unit 2 FSAR, Table 15.1.28.
6. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 8) →

Section B 3.3.7.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert B:

8. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.8.2.2

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.

Insert A → The Frequency is based on the assumption of the magnitude of equipment drift in the setpoint analysis.

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 circuit breakers is included as part of this test to provide complete testing of the safety function. If the breakers are incapable of operating, the associated electric power monitoring assembly would be inoperable.

Insert B → The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 8.7.
2. NRC Generic Letter 91-09, "Modification of Surveillance Interval for the Electrical Protective Assemblies in Power Supplies for the Reactor Protection System."
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert C
(Reference 4) →

Section B 3.3.8.2 Inserts

Insert A:

The 184 day Frequency is based on Reference 4.

Insert B:

The 184 day Frequency is based on Reference 4.

Insert C:

4. NRC Safety Evaluation Report for Amendment ____.

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.4.3.1

This Surveillance requires that the S/RVs will open at the pressures assumed in the safety analysis of Reference 1. The demonstration of the S/RV safety lift settings must be performed during shutdown, since this is a bench test, to be done in accordance with the Inservice Testing Program. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint is $\pm 3\%$ for OPERABILITY; however, the valves are reset to $\pm 1\%$ during the Surveillance to allow for drift.

The Frequency ^{is} ~~Performance of this SR in accordance with the Inservice Testing Program, requires an 18 month frequency. The 18 month frequency was selected because this Surveillance must be performed during shutdown conditions and is based on the time between refuelings.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.4.5.2

This SR is for the performance of a CHANNEL FUNCTIONAL TEST of the required RCS leakage detection instrumentation. The test ensures that the monitors can perform their function in the desired manner. The test also verifies the alarm setpoint and relative accuracy of the instrument string. The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.

SR 3.4.5.3

This SR is for the performance of a CHANNEL CALIBRATION of required leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside containment. The frequency of 18 months is a typical refueling cycle and considers channel reliability. Operating experience has proven this Frequency is acceptable.

Insert A →

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
2. FSAR, Section 4.10.3.4.
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 of Boiling Water Reactors," October 1975.
5. FSAR, Section 4.10.3.2.
6. NRC Safety Evaluation Report for Amendment 185, April 30, 1993.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 8) →

Section B 3.4.5 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert B:

8. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9 (continued)

valves to continue to control reactor pressure when the HPCI System diverts steam flow. The reactor steam pressure must be ≥ 920 psig to perform SR 3.5.1.8 and ≥ 150 psig to perform SR 3.5.1.9. Adequate steam flow for SR 3.5.1.8 is represented by at least two turbine bypass valves open, or ≥ 200 MWE from the main turbine generator; and for SR 3.5.1.9 adequate steam flow is represented by at least 1.25 turbine bypass valves open, or total steam flow $\geq 1E6$ lb/hr. Therefore, sufficient time is allowed after adequate 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. 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 3.5.1.8 and SR 3.5.1.9 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 12 hours allowed is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR.

24

The Frequency for SR 3.5.1.7 and SR 3.5.1.8 is consistent with the Inservice Testing Program pump testing requirements. The 18 month Frequency for SR 3.5.1.9 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 has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert A →

SR 3.5.1.10

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.10 (continued)

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 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.

²⁴

The ~~18~~ month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

~~Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

Insert B →

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.

SR 3.5.1.11

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 3.5.1.12 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.

²⁴

The ~~18~~ month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.11 (continued)

outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Insert C → ~~Operating experience has shown that these components usually pass the SR when performed at the 18 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.

SR 3.5.1.12

The pneumatic actuator of each ADS valve is stroked to verify that the pilot disc rod lifts when the actuator strokes. Pilot rod lift is determined by measurement of rod travel. The total amount of lift of the pilot rod from the valve closed position to the open position shall meet criteria established by the S/RV supplier. SRs 3.5.1.11 and 3.3.5.1.5 overlap this SR to provide testing of the S/RV relief mode function. Additional functional testing is performed by tests required by the ASME OM Code (Ref. 14).

Insert D → ~~The Frequency of 18 months is based on the S/RV tests required by the ASME OM Code (Ref. 14). Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 6.4.3.
2. FSAR, Section 6.4.4.
3. FSAR, Section 6.4.1.
4. FSAR, Section 6.4.2.
5. FSAR, Section 14.4.3.
6. FSAR, Section 14.4.5.
7. 10 CFR 50, Appendix K.
8. FSAR, Section 6.5.
9. NEDC-31376P, "E.I. Hatch Nuclear Plant Units 1 and 2 SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," December 1986.
10. 10 CFR 50.46.
11. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.
12. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
13. NEDC-32041P, "Safety Review for Edwin I. Hatch Nuclear Power Plant Units 1 and 2 Updated Safety/Relief Valve Performance Requirements," April 1996.
14. ASME, OM Code - 1995, "Code for Operation and Maintenance of Nuclear Power Plants," Appendix I.

Insert E
(Reference 15) →

Section B 3.5.1 Inserts

Insert A:

The 24 month Frequency of SR 3.5.1.9 is based on a review of the surveillance test history and Reference 15.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert E:

15. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

24

sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. A 92 day Frequency for SR 3.5.3.3 is consistent with the Inservice Testing Program requirements. The 18 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 has shown

Insert A →

that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.5.3.5

The RCIC System is required to actuate automatically in order to verify 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 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 3.3.5.2 overlaps this Surveillance to provide complete testing of the assumed safety function.

24

The 18 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.

Insert B →

Operating experience has shown that these components usually pass the SR when performed at the 18 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

SR 3.5.3.5 (continued)

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.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 33.
2. FSAR, Section 4.7.
3. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.
4. GE Report AES-41-0688, "Safety Evaluation for Relaxation of RCIC Performance Requirements for Plant Hatch Units 1 and 2," July 1988.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert C
(Reference 6) →

Section B 3.5.3 Inserts

Insert A:

The 24 month Frequency of SR 3.5.3.4 is based on a review of the surveillance test history and Reference 6.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 6.

Insert C:

6. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.1.1 (continued)

must be evaluated against the Type A, B, and C acceptance criteria of the Primary Containment Leakage Rate Testing Program. The Primary Containment Leakage Rate Testing Program is based on the guidelines in Regulatory Guide 1.163 (Ref. 6), NEI 94-01 (Ref. 7), and ANSI/ANS-56.8-1994 (Ref. 8). Specific acceptance criteria for as found and as left leakage rates, as well as the methods of defining the leakage rates, are contained in the Primary Containment Leakage Rate Testing Program. At all other times between required leakage rate tests, the acceptance criteria are based on an overall Type A leakage limit of $1.0 L_a$. At $1.0 L_a$, the offsite dose consequences are bounded by the assumptions of the safety analysis. The Frequency is required by the Primary Containment Leak Rate Testing Program.

SR 3.6.1.1.2

Maintaining the pressure suppression function of primary containment requires limiting the leakage from the drywell to the suppression chamber. Thus, if an event were to occur that pressurized the drywell, the steam would be directed through the downcomers into the suppression pool. This SR measures drywell to suppression chamber differential pressure during a 10 minute period to ensure that the leakage paths that would bypass the suppression pool are within allowable limits.

24 — 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 ~~18~~ months. The ~~18~~ 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. ~~Two~~ *Insert A* consecutive test failures, however, would indicate unexpected primary containment degradation; in this event, as the Note indicates, increasing the Frequency to once

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.1.2 (continued)

every 9 months is required until the situation is remedied as evidenced by passing two consecutive tests.

REFERENCES

1. FSAR, Section 5.2.
2. FSAR, Section 14.4.3.
3. 10 CFR 50, Appendix J, Option B.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. Primary Containment Leakage Rate Testing Program.
6. Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," September 1995.
7. NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, July 26, 1995.
8. ANSI/ANS-56.8-1994, "American National Standard for Containment System Leakage Testing Requirements," 1994.

*Insert B
(Reference 9)* →

Section B 3.6.1.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 9.

Insert B:

9. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.1.3.5

Verifying the isolation time of each power operated and each automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that each valve will isolate in a time period less than or equal to that listed in the FSAR and that no degradation affecting valve closure since the performance of the last Surveillance has occurred. (EFCVs are not required to be tested because they have no specified time limit). The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 100 limits. The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

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 SR 3.3.6.1.6 overlaps this SR to provide complete testing of the safety function. The ~~18~~ 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 has shown that these components usually pass this Surveillance when performed at the 18 month frequency. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.

Insert A →

24

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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 reduces flow to within limits on an actual or simulated instrument line break condition. This SR provides assurance that the instrumentation line EFCVs will perform as designed. The 24 ~~18~~ 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.

Insert B →

~~Operating experience has shown that these components usually pass this Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

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 ~~18~~ 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).

Insert C

SR 3.6.1.3.10

The analyses in References 1 and 3 are based on leakage that is less than the specified leakage rate. Leakage through each MSIV must be ≤ 11.5 scfh when tested at ≥ 28.0 psig.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.3.10 (continued)

The Frequency is required by the Primary Containment Leakage Rate Testing Program (Ref. 6).

SR 3.6.1.3.11

24 The valve seats of each 18 inch purge valve (supply and exhaust) having resilient material seats must be replaced every 18 months. This will allow the opportunity for repair before gross leakage failure develops. The 18 month Frequency is based on engineering judgment and operational experience which shows that gross leakage normally does not occur when the valve seats are replaced on an 18 month Frequency.

Insert D →

SR 3.6.1.3.12

The Surveillance Requirement provides assurance that the excess flow isolation dampers can close following an isolation signal. The 18 month Frequency is based on vendor recommendations and engineering judgment. Operating experience has shown that these dampers usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert E →

REFERENCES

1. FSAR, Section 14.4.
2. Technical Requirements Manual
3. FSAR, Section 5.2.
4. 10 CFR 50, Appendix J, Option B.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
6. Primary Containment Leakage Rate Testing Program.

Insert F
(Reference 7) →

Section B 3.6.1.3 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 7.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 7.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 7.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 7.

Insert E:

The 24 month Frequency is based on a review of the surveillance test history and Reference 7.

Insert F:

7. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.6.1

The pneumatic actuator of each LLS valve is stroked to verify that the pilot disc rod lifts when the actuator strokes. Pilot rod lift is determined by measurement of rod travel. The total amount of lift of the pilot rod from the valve closed position to the open position shall meet criteria established by the S/RV supplier. SRs 3.6.1.6.2 and 3.3.6.3.6 overlap this SR to provide testing of the S/RV relief mode function. Additional functional testing is performed by tests required by the ASME OM Code (Ref. 2).

Insert A → ~~Also, the Frequency of 18 months is based on the S/RV tests required by the OM Code.~~

SR 3.6.1.6.2

The LLS designated S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to verify that the mechanical portions (i.e., solenoids) of the LLS function operate as designed when initiated either by an actual or simulated automatic initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.3.6 overlaps this SR to provide complete testing of the safety function.

²⁴
The ~~18~~ 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.

Insert B → ~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. 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 a reactor pressure vessel pressure blowdown.

(continued)

BASES

REFERENCES

1. FSAR, Section 4.11.
2. ASME, OM Code - 1995, "Code for Operation and Maintenance of Nuclear Power Plants, Appendix I."
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. NEDC-32041P, "Safety Review for Edwin I. Hatch Nuclear Power Plant Units 1 and 2 Updated Safety/Relief Valve Performance Requirements," April 1996.

Insert C
(Reference 5) →

Section B 3.6.1.6 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert C:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.1.7.3

24

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 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency and is further justified because of other Surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.

Insert A →

REFERENCES

1. FSAR, Section 5.2.
2. Unit 2 FSAR, Section 6.2.1.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 4) →

Section B 3.6.1.7 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert B:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.1.8.2

Each required (i.e., required to be OPERABLE for opening) vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The 31 day Frequency of this SR was developed, based on Inservice Testing Program requirements to perform valve testing at least once every 92 days. A 31 day Frequency was chosen to provide additional assurance that the vacuum breakers are OPERABLE, since they are located in a harsh environment (the suppression chamber airspace). In addition, this functional test is required within 12 hours after a discharge of steam to the suppression chamber from the safety/relief valves.

SR 3.6.1.8.3

Verification of the 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 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency, and is further justified because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.

Insert A →

24

It

REFERENCES

1. FSAR, Section 5.2.
2. Unit 2 FSAR, Section 6.2.1.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. Technical Requirements Manual.

Insert B →
(Reference 5)

Section B 3.6.1.8 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.4.1.3 and SR 3.6.4.1.4

The Unit 1 and Unit 2 SGT Systems 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 appropriate SGT System(s) will rapidly establish and maintain a negative pressure in the secondary containment. This is confirmed by demonstrating that the required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch 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 the required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge for 1 hour at a flow rate ≤ 4000 cfm for each SGT subsystem. The 1 hour test period allows secondary containment to be in thermal equilibrium at steady state 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 SGT subsystem. 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, each SGT subsystem or combination of subsystems will perform this test. The number of SGT subsystems and the required combinations are dependent on the configuration of the secondary containment and are detailed in the Technical Requirements Manual (Ref. 3). The Note to SR 3.6.4.1.3 and SR 3.6.4.1.4 specifies that the number of required SGT subsystems be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration.

Insert A → ~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

REFERENCES

1. FSAR, Section 14.4.3.
2. FSAR, Section 14.4.4.
3. Technical Requirements Manual.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B →
(Reference 5)

Section B 3.6.4.1 Inserts

Insert A:

The 24 month Frequency, on a STAGGERED TEST BASIS, of SRs 3.6.4.1.3 and 3.6.4.1.4 is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.4.2.2

Verifying that the isolation time of each power operated and each 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 was developed based upon engineering judgment and the similarity to PCIVs.

SR 3.6.4.2.3

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 SR 3.3.6.2.5 overlaps this SR to provide complete testing of the safety function. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint. 24

Insert A →

REFERENCES

1. FSAR, Section 14.3.3.
2. FSAR, Section 14.3.4.
3. Technical Requirements Manual.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 5) →

Section B 3.6.4.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

ACTIONS

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

operations. Therefore, in either case, inability to suspend movement of irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE
REQUIREMENTS

SR 3.6.4.3.1

Operating each required Unit 1 and Unit 2 SGT subsystem for ≥ 10 continuous hours ensures that they are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. Operation with the heaters on for ≥ 10 continuous hours every 31 days eliminates moisture on the adsorbers and HEPA filters. The 31 day Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.

SR 3.6.4.3.2

This SR verifies that the required Unit 1 and Unit 2 SGT filter testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.6.4.3.3

This SR verifies that each required Unit 1 and Unit 2 SGT subsystem starts on receipt of an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.2.5 overlaps this SR to provide complete testing of the safety function. ~~While this~~ Surveillance can be performed with the reactor at power. ~~operating experience~~

This

Insert A

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.4.3.3 (continued)

has shown that these components usually pass the surveillance when performed at the 18 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. Unit 2 FSAR, Section 6.2.3.
4. Technical Requirements Manual
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 6) →

Section B 3.6.4.3 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 6.

Insert B:

6. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.2.2 (continued)

This SR is modified by a Note indicating that isolation of the PSW System to components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the PSW System. As such, when all PSW pumps, valves, and piping are OPERABLE, but a branch connection off the main header is isolated, the PSW System is still OPERABLE.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 3.7.2.3

This SR verifies that the automatic isolation valves of the PSW System will automatically switch to the safety or emergency position to provide cooling water exclusively to the safety related equipment during an accident event. This is demonstrated by the use of an actual or simulated initiation signal. This SR also verifies the automatic start capability (on a LOCA or LOSP signal) of one of the two PSW pumps in each subsystem.

Insert A →

Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, this Frequency is concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 10.7.
2. FSAR, Section 5.2.
3. FSAR, Chapter 14.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B →
(Reference 5)

Section B 3.7.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

ACTIONS

B.1 (continued)

OPERABLE status within 60 days, DG 1B must be immediately declared inoperable.

SURVEILLANCE
REQUIREMENTS

SR 3.7.3.1

Verifying the correct alignment for manual, power operated, and automatic valves in the DG 1B SSW System flow path provides assurance that the proper flow paths will exist for DG 1B SSW System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position, and yet be considered in the correct position provided it can be automatically realigned to its accident position, within the required time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 3.7.3.2

This SR ensures that the DG 1B SSW System pump will automatically start to provide required cooling to the DG 1B when the DG 1B starts and the respective bus is energized.

Insert A →

Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency which is based at the refueling cycle. Therefore, this Frequency is concluded to be acceptable from a reliability standpoint.

(continued)

BASES (continued)

REFERENCES

1. Unit 2 FSAR, Section 9.2.1.
2. FSAR, Section 5.2.REFERENCES
3. FSAR, Chapter 14.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 5) →

Section B 3.7.3 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.4.1 (continued)

operating conditions of this system are not severe, testing each subsystem once every 31 days provides an adequate check on this system. Since the MCREC System does not have heaters, each subsystem need only be operated for ≥ 15 minutes to demonstrate the function of the subsystem. Furthermore, the 31 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.

SR 3.7.4.2

This SR verifies that the required MCREC testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.4.3

This SR verifies that on an actual or simulated initiation signal, each MCREC subsystem starts and operates. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.4 overlaps this SR to provide complete testing of the safety function. ~~While this~~ *This* Surveillance can be performed with the reactor at power. *operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.*

SR 3.7.4.4

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 potentially contaminated adjacent areas (the turbine building), is periodically tested to verify proper function of the MCREC System. During the pressurization mode of operation, the MCREC System is designed to slightly

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.4.4 (continued)

pressurize the control room ≥ 0.1 inches water gauge positive pressure with respect to the turbine building to prevent unfiltered inleakage. The MCREC System is designed to maintain this positive pressure at a flow rate of ≤ 2750 cfm through the control room in the pressurization mode. This SR ensures the total flow rate meets the design analysis value of $2500 \text{ cfm} \pm 10\%$ and ensures the outside air flow rate is ≤ 400 cfm. ~~The frequency of 18 months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration systems SRs.~~

Insert B →

REFERENCES

1. Unit 2 FSAR, Section 6.4.
2. Unit 2 FSAR, Section 9.4.1.
3. FSAR, Section 5.2.
4. FSAR, Chapter 14.
5. Unit 2 FSAR, Section 6.4.1.2.2.
6. Unit 2 FSAR, Table 15.1-28.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
8. Technical Requirements Manual.

Insert C
(Reference 9) →

Section B 3.7.4 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 9.

Insert B:

The 24 month Frequency, on a STAGGERED TEST BASIS, is based on a review of the surveillance test history and Reference 9.

Insert C:

9. NRC Safety Evaluation Report for Amendment ____.

BASES

ACTIONS

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

action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, CORE ALTERATIONS and handling of irradiated fuel in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

SURVEILLANCE
REQUIREMENTS

SR 3.7.5.1

This SR verifies that the heat removal capability of the system is sufficient to remove the control room heat load assumed in the safety analysis. The SR consists of a combination of testing and calculation. The ~~18~~ ²⁴ month Frequency is appropriate since significant degradation of the Control Room AC System is not expected over this time period. *← Insert A*

REFERENCES

1. Unit 2 FSAR, Sections 6.4 and 9.4.1.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
3. Technical Requirements Manual.

Insert B
(Reference 4) 

Section B 3.7.5 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert B:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

ACTIONS
(continued)

B.1

If the Main Turbine Bypass System cannot be restored to OPERABLE status or the MCPR limits for an inoperable Main Turbine Bypass System are not applied, THERMAL POWER must be reduced to < 25% RTP. As discussed in the Applicability section, operation at < 25% RTP results in sufficient margin to the required limits, and the Main Turbine Bypass System is not required to protect fuel integrity during the turbine generator load rejection transient. 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 3.7.7.1

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 3.7.7.2

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 ~~18~~ 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 ~~The 18 month Frequency, which is based on the refueling cycle, is acceptable from a reliability standpoint.~~
Insert A →

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.7.7.3

24

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 Technical Requirements Manual (Ref. 3). The 18 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.

Insert B →

~~Operating experience has shown the 18 month Frequency, which is based on the refueling cycle, is acceptable from a reliability standpoint.~~

REFERENCES

1. FSAR, Section 7.11.
2. FSAR, Section 14.3.2.1.
3. Technical Requirements Manual.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert C
(Reference 5) →

Section B 3.7.7 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert C:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.5 (continued)

historically have a very low failure rate. If the swing DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

SR 3.8.1.6

Transfer of each 4.16 kV ESF bus power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit distribution network to power the shutdown loads. The 24 ~~18~~ month Frequency of the Surveillance is based on engineering judgment taking into consideration the plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

Insert A →

~~Operating experience has shown that these components usually pass the SR when performed on the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1 or 2 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1 or 2 and the Unit 2 test should not be performed with Unit 2 in MODE 1 or 2.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1.7

Each DG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the DG load response characteristics and capability to reject the largest single load without exceeding predetermined voltage and frequency and while maintaining a specified margin to the overspeed trip. The largest single load for DGs 1A and 1C is a core spray pump at rated flow (1275 bhp). For DG 1B, the largest single load is a residual heat removal service water pump at rated flow (1225 bhp). This Surveillance may be accomplished by: a) tripping the DG output breaker with the DG carrying greater than or equal to its associated single largest post-accident load while paralleled to offsite power or while solely supplying the bus, or b) tripping its associated single largest post-accident load with the DG solely supplying the bus. Although Plant Hatch Unit 1 is not committed to IEEE-387-1984 (Ref. 12), this SR is consistent with the IEEE-387-1984 requirement that states the load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower. For all DGs, this represents 65.5 Hz, equivalent to 75% of the difference between nominal speed and the overspeed trip setpoint.

The voltage and frequency specified are consistent with the nominal range for the DG. SR 3.8.1.7.a corresponds to the maximum frequency excursion, while SR 3.8.1.7.b is the voltage to which the DG must recover following load rejection. The ~~18~~ month Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 10).

24
Insert B

This SR is modified by two Notes. The reason for Note 1 is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.8 (continued)

24 The ~~18~~ month Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 10) and is intended to be consistent with expected fuel cycle lengths.

Insert C

This SR is modified by three Notes. The reason for Note 1 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that would challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Note 2 is provided in recognition that if the offsite electrical power distribution system is lightly loaded (i.e., system voltage is high), it may not be possible to raise voltage without creating an overvoltage condition on the ESF bus. Therefore, to ensure the bus voltage, supplied ESF loads, and DG are not placed in an unsafe condition during this test, the power factor limit does not have to be met if grid voltage or ESF bus loading does not permit the power factor limit to be met when the DG is tied to the grid. When this occurs, the power factor should be maintained as close to the limit as practicable.

To minimize testing of the swing DG, Note 3 allows a single test (instead of two tests, one for each unit) to satisfy the requirements for both units. This is allowed since the main purpose of the Surveillance can be met by performing the test on either unit (no unit specific DG components are being tested). If the swing DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

SR 3.8.1.9

This Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source and is consistent with Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(1). This test verifies all actions encountered from the loss of offsite power, including shedding of the nonessential loads and energization of the emergency buses and respective loads from the DG. It further demonstrates the capability of the DG to

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.9 (continued)

automatically achieve the required voltage and frequency within the specified time.

The DG auto-start time of 12 seconds is derived from requirements of the accident analysis for responding to a design basis large break LOCA. The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability has been achieved.

The requirement to verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified. For the purpose of this testing, the DGs shall be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

The Frequency of ²⁴~~12~~ months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(1), takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. ↗

Insert D —

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.10 (continued)

24

The Frequency of ~~18~~ months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with the expected fuel cycle lengths. Operating experience has shown that these

Insert E →

components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could potentially cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1 or 2 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1 or 2 and the Unit 2 test should not be performed with Unit 2 in MODE 1 or 2.

SR 3.8.1.11

This Surveillance demonstrates that DG non-critical protective functions (e.g., high jacket water temperature) are bypassed on a loss of voltage signal concurrent with an ECCS initiation signal and critical protective functions (engine overspeed, generator differential current, and low lubricating oil pressure) are available to trip the DG to avert substantial damage to the DG unit. The non-critical trips are bypassed during DBAs and provide an alarm on an abnormal engine condition. This alarm provides the operator with sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.11 (continued)

24

The ~~18~~ month Frequency ~~is based on engineering judgment,~~ takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. ~~Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.~~

Insert F →

The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DG from service. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1 or 2 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

SR 3.8.1.12

24

Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(3), requires demonstration once per ~~18~~ months that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours. The first 2 hours of this test are performed at ≥ 3000 kW and the last 22 hours of this test are performed at ≥ 2775 kW and ≤ 2825 kW, which is near the continuous rating of the DG. This is in accordance with commitments described in FSAR Section 8.4 (Ref. 2). The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, 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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.12 (continued)

possible, testing must be performed using a power factor ≤ 0.88 . 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.

The ²⁴~~18~~ month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(3); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths. ↗

Insert G

This Surveillance has been modified by four Notes. Note 1 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. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that would challenge continued steady state operation and, as a result, plant safety systems. However, it is acceptable to perform this SR in MODES 1 and 2 provided the other two DGs are OPERABLE, since a perturbation can only affect one divisional DG. If during the performance of this Surveillance, one of the other DGs becomes inoperable, this Surveillance is to be suspended. The surveillance may not be performed in MODES 1 and 2 during inclement weather and unstable grid conditions. Credit may be taken for unplanned events that satisfy this SR. Note 3 is provided in recognition that if the offsite electrical power distribution system is lightly loaded (i.e., system voltage is high), it may not be possible to raise voltage without creating an overvoltage condition on the ESF bus. Therefore, to ensure the bus voltage, supplied ESF loads, and DG are not placed in an unsafe condition during this test, the power factor limit does not have to be met if grid voltage or ESF bus loading does not permit the power factor limit to be met when the DG is tied to the grid. When this occurs, the power factor should be maintained as close to the limit as practicable. To minimize testing of the swing DG, Note 4 allows a single test (instead of two tests, one for each unit) to satisfy the requirements for both units. This is allowed since the main purpose of the Surveillance can be met by performing the test on either unit (no unit

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.12 (continued)

specific DG components are being tested). If the swing DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

SR 3.8.1.13

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within 12 seconds. The 12 second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. The ~~18~~ month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(5). *24*

Insert H

This SR is modified by three Notes. Note 1 ensures that the test is performed with the diesel sufficiently hot. The requirement that the diesel has operated for at least 2 hours at near full load conditions prior to performance of this Surveillance is based on manufacturer recommendations for achieving hot conditions. Momentary transients due to changing bus loads do not invalidate this test. Note 2 allows all DG starts to be preceded by an engine prelube period to minimize wear and tear on the diesel during testing. To minimize testing of the swing DG, Note 3 allows a single test (instead of two tests, one for each unit) to satisfy the requirements for both units. This is allowed since the main purpose of the Surveillance can be met by performing the test on either unit (no unit specific DG components are being tested). If the swing DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

SR 3.8.1.14

This Surveillance is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(6), and ensures that the manual synchronization and automatic load transfer from the DG to the offsite source can be made and that the DG can be returned to ready-to-load status when offsite power is restored. It also ensures that the

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.14 (continued)

auto-start logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in ready-to-load status when the DG is at rated speed and voltage, the output breaker is open and can receive an auto-close signal on bus undervoltage, and the load sequence timers are reset.

The Frequency of ²⁴~~18~~ months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(6), and takes into consideration plant conditions required to perform the Surveillance.

Insert I

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1, 2, or 3 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

SR 3.8.1.15

Demonstration of the test mode override ensures that the DG availability under accident conditions is not compromised as the result of testing. Interlocks to the LOCA sensing circuits cause the DG to automatically reset to ready-to-load operation if an ECCS initiation signal is received during operation in the test mode. Ready-to-load operation is defined as the DG running at rated speed and voltage with the DG output breaker open. Although Plant Hatch Unit 1 is not committed to this standard, this SR is consistent with the provisions for automatic switchover required by IEEE-308 (Ref. 13), paragraph 6.2.6(2).

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.15 (continued)

The intent in the requirements associated with SR 3.8.1.15.b is to show that the emergency loading is not affected by the DG operation in test mode. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the emergency loads to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

²⁴
The ~~18~~ month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(8); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

Insert J

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1, 2, or 3 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

SR 3.8.1.16

Under accident conditions, loads are sequentially connected to the bus by the automatic load sequence timing devices. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the DGs due to high motor starting currents. The 10% load sequence time interval tolerance ensures 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 buses.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.16 (continued)

The Frequency of ²⁴~~18~~ months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(2); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

Insert K

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.

This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1, 2, or 3 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

SR 3.8.1.17

In the event of a DBA coincident with a loss of offsite power, the DGs are required to supply the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded.

This Surveillance demonstrates DG operation, as discussed in the Bases for SR 3.8.1.9, during a loss of offsite power actuation test signal in conjunction with an ECCS initiation signal. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified. For the purpose of this testing, the DGs must be started from

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.17 (continued)

standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

The Frequency of ²⁴~~18~~ months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length.

Insert L → ~~of 18 months.~~

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1, 2, or 3 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

SR 3.8.1.18

This Surveillance demonstrates that the DG starting independence has not been compromised. Also, this Surveillance demonstrates that each engine can achieve proper speed within the specified time when the DGs are started simultaneously. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations. It is permissible to place all three DGs in test simultaneously, for the performance of this Surveillance.

(continued)

BASES

REFERENCES
(continued)

8. 10 CFR 50, Appendix A, GDC 18.
9. Regulatory Guide 1.9, March 1971.
10. Regulatory Guide 1.108, August 1977.
11. Regulatory Guide 1.137, October 1979.
12. IEEE Standard 387-1984.
13. IEEE Standard 308-1980.
14. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert M
(Reference 15) →

Section B 3.8.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert E:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert F:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert G:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Section B 3.8.1 Inserts (Continued)

Insert H:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert I:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert J:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert K:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert L:

The 24 month Frequency is based on a review of the surveillance test history and Reference 15.

Insert M:

15. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.3.7 (continued)

system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for manual fuel transfer are OPERABLE.

Since the fuel oil transfer pumps are being tested on a 31 day Frequency in accordance with SR 3.8.3.5, the 18 month Frequency has been determined to be acceptable. ~~based on~~

Insert A → engineering judgement and operating experience. 24

REFERENCES

1. FSAR, Section 8.4.
2. FSAR, Chapters 5 and 6.
3. FSAR, Chapter 14.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 5) →

Section B 3.8.3 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.2 (continued)

The resistance values for each battery connection are located in the Technical Requirements Manual (Reference 9).

The Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is 92 days. This Frequency is considered acceptable based on operating experience related to detecting corrosion trends.

SR 3.8.4.3

Visual inspection of the battery cells, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

Insert A → The ²⁴~~18~~ month Frequency of the Surveillance ^{takes} ~~is based on engineering judgment, taking~~ into consideration the desired plant conditions to perform the Surveillance. ~~Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

SR 3.8.4.4 and SR 3.8.4.5

Visual inspection and resistance measurements of inter-cell, inter-rack, inter-tier, and terminal connections provides an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anti-corrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection.

The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure of this SR, provided visible corrosion is removed during performance of this Surveillance.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.4 and SR 3.8.4.5 (continued)

The connection resistance limits are established to maintain connection resistance as low as reasonably possible to minimize the overall voltage drop across the battery and the possibility of battery damage due to heating of connections. The resistance values for each battery connection are located in the Technical Requirements Manual (Reference 9).

²⁴ The ~~18~~ month Frequency of the Surveillances ^{takes} ~~is based on engineering judgment, taking~~ into consideration the desired plant conditions to perform the Surveillance. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert B →

SR 3.8.4.6

Battery charger capability requirements are based on the design capacity of the chargers (Ref. 4). According to Regulatory Guide 1.32 (Ref. 10), each battery charger supply is required to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensures that these requirements can be satisfied.

²⁴ The Frequency is acceptable, given the unit conditions required to perform the test and the other administrative controls existing to ensure adequate charger performance during these ~~18~~ month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.

Insert C →

SR 3.8.4.7

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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.7 (continued)

24

The Frequency of ~~18~~ months is consistent with the recommendations of Regulatory Guide 1.32 (Ref. 10) and Regulatory Guide 1.129 (Ref. 11), which state that the battery service test should be performed during refueling operations or at some other outage. ~~with intervals between~~

Insert D → ~~tests not to exceed 18 months.~~

This SR is modified by two Notes. Note 1 allows the performance of a modified performance discharge test in lieu of a service test.

The modified performance discharge test is a simulated duty cycle consisting of just two rates: the 1 minute rate published for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance test, both of which envelope the duty cycle of the service test. Since the ampere-hours removed by a rated 1 minute discharge represent a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test should remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

A modified performance discharge test is a test of the battery capacity and its ability to provide a high rate, short duration load (usually the highest rate of the duty cycle). This will often confirm the battery's ability to meet the critical period of the load duty cycle, in addition to determining its percentage of rated capacity. Initial conditions for the modified performance discharge test should be identical to those specified for a service discharge test.

The reason for Note 2 is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned

(continued)

BASES

REFERENCES
(continued)

5. FSAR, Chapters 5 and 6.
6. FSAR, Chapter 14.
7. Regulatory Guide 1.93, December 1974.
8. IEEE Standard 450-1987.
9. Technical Requirements Manual.
10. Regulatory Guide 1.32, February 1977.
11. Regulatory Guide 1.129, December 1974.
12. IEEE Standard 485-1983.
13. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert E
(Reference 14) →

Section B 3.8.4 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert B:

The 24 month Frequency of SRs 3.8.4.4 and 3.8.4.5 is based on a review of the surveillance test history and Reference 14.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert E:

14. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.7.7 (continued)

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. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this Surveillance is in accordance with the Inservice Testing Program.

SR 3.1.7.8 and SR 3.1.7.9

These Surveillances ensure that there is a functioning flow path from the sodium pentaborate 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. The pump and explosive valve tested should be alternated such that both complete flow paths are tested every ~~36~~ months at alternating ~~18~~ month intervals. 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 ~~18~~ month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating

experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency; therefore, the frequency was concluded to be acceptable from a reliability standpoint.

Insert A →

Demonstrating that all heat traced piping between the sodium pentaborate 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 test tank.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.7.8 and SR 3.1.7.9 (continued)

²⁴
The ~~10~~ 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 heat traced piping. This is especially true in light of the temperature verification of this piping required by SR 3.1.7.3. However, if, in performing SR 3.1.7.3, it is determined that the temperature of this piping has fallen below the specified minimum, SR 3.1.7.9 must be performed once within 24 hours after the piping temperature is restored to within the Region A limits of Figure 3.1.7-2.

Insert B

SR 3.1.7.10

Enriched sodium pentaborate solution is made by mixing granular, enriched sodium pentaborate with water. Isotopic tests on the granular sodium pentaborate to verify the actual B-10 enrichment must be performed prior to addition to the SLC tank in order to ensure that the proper B-10 atom percentage is being used.

REFERENCES

1. 10 CFR 50.62.
2. FSAR, Section 4.2.3.4.3.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert C
(Reference 4) →

Section B 3.1.7 Inserts

Insert A:

The 24 month Frequency of SR 3.1.7.8 is based on a review of the surveillance test history and Reference 4.

Insert B:

The 24 month Frequency of SR 3.1.7.9 is based on a review of the surveillance test history and Reference 4.

Insert C:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.8.3 (continued)

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 ~~18~~ ²⁴ month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert A →

REFERENCES

1. FSAR, Section 4.2.3.2.2.3.
2. 10 CFR 100.
3. NUREG-0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping," August 1981.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 5) →

Section B 3.1.8 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

7.a. and 7.b. Scram Discharge Volume Water Level — High
(continued)

Four channels of each type of Scram Discharge Volume Water Level — High Function, with two channels of each type in each trip system, are required to be OPERABLE to ensure that no single instrument failure will preclude a scram from these Functions on a valid signal. These Functions are required in MODES 1 and 2, and in MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies, since these are the MODES and other specified conditions when control rods are withdrawn. At all other times, this Function may be bypassed.

8. Turbine Stop Valve — Closure

Closure of the TSVs results in the loss of a heat sink that produces reactor pressure, neutron flux, and heat flux transients that must be limited. Therefore, a reactor scram is initiated on a TSV—Closure signal before the TSVs are completely closed in anticipation of the transients that would result from the closure of these valves. The Turbine Stop Valve — Closure Function is the primary scram signal for the turbine trip event analyzed in Reference 2. For this event, the reactor scram reduces the amount of energy required to be absorbed and, along with the actions of the End of Cycle Recirculation Pump Trip (EOC-RPT) System, ensures that the MCPR SL is not exceeded.

Turbine Stop Valve — Closure signals are initiated from position switches located on each of the four TSVs. Two independent position switches are associated with each stop valve. One of the two switches provides input to RPS trip system A; the other, to RPS trip system B. Thus, each RPS trip system receives an input from four Turbine Stop Valve — Closure channels, each consisting of one position switch. The logic for the Turbine Stop Valve — Closure Function is such that three or more TSVs must be closed to produce a scram. In addition, certain combinations of two valves closed will result in a half-scram. This Function must be enabled at THERMAL POWER \geq 28% RTP. This is normally accomplished automatically by pressure ~~transmitters~~ sensing turbine first stage pressure; therefore, opening of the turbine bypass valves may affect this Function.

switches

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO and
APPLICABILITY

8. Turbine Stop Valve — Closure (continued)

The Turbine Stop Valve — Closure Allowable Value is selected to be high enough to detect imminent TSV closure, thereby reducing the severity of the subsequent pressure transient.

Eight channels of Turbine Stop Valve — Closure Function, with four channels in each trip system, are required to be OPERABLE to ensure that no single instrument failure will preclude a scram from this Function if the TSVs should close. This Function is required, consistent with analysis assumptions, whenever THERMAL POWER is $\geq 28\%$ RTP. This Function is not required when THERMAL POWER is $< 28\%$ RTP since the Reactor Vessel Steam Dome Pressure — High and the Average Power Range Monitor Neutron Flux — High Functions are adequate to maintain the necessary safety margins.

9. Turbine Control Valve Fast Closure, Trip Oil Pressure — Low

Fast closure of the TCVs results in the loss of a heat sink that produces reactor pressure, neutron flux, and heat flux transients that must be limited. Therefore, a reactor scram is initiated on TCV fast closure in anticipation of the transients that would result from the closure of these valves. The Turbine Control Valve Fast Closure, Trip Oil Pressure — Low Function is the primary scram signal for the generator load rejection event analyzed in Reference 2. For this event, the reactor scram reduces the amount of energy required to be absorbed and, along with the actions of the EOC-RPT System, ensures that the MCPR SL is not exceeded.

Turbine Control Valve Fast Closure, Trip Oil Pressure — Low signals are initiated by the electrohydraulic control (EHC) fluid pressure at each control valve. One pressure ~~transmitter~~ is associated with each control valve, and the signal from each ~~transmitter~~ is assigned to a separate RPS logic channel. This Function must be enabled at THERMAL POWER $\geq 28\%$ RTP. This is normally accomplished automatically by pressure ~~transmitters~~ sensing turbine first stage pressure; therefore, opening of the turbine bypass valves may affect this Function.

switch

switches

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.9 and SR 3.3.1.1.12

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 92 day Frequency of SR 3.3.1.1.9 is based on the reliability analysis of Reference 9.

24 — of SR 3.3.1.1.12

The ~~18~~ 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.

Insert A → Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.

SR 3.3.1.1.10

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. For the APRM Functions, this test supplements the automatic self-test functions that operate continuously in the APRM and voter channels. The APRM CHANNEL FUNCTIONAL TEST covers the APRM channels (including recirculation flow processing — applicable to Function 2.b only), the two-out-of-four voter channels, and the interface connections to the RPS trip systems from the voter channels. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. The 184 day Frequency of SR 3.1.1.1.10 is based on the reliability analysis of References 13 and 17. (NOTE: The actual voting logic of the two-out-of-four voter channels is tested as part of SR 3.3.1.1.15.)

For Function 2.a, a Note that requires this SR to be performed within 12 hours of entering MODE 2 from MODE 1 is provided. Testing of the MODE 2 APRM Function cannot be performed in MODE 1 without utilizing jumpers or lifted leads. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.1.1.11

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 $\geq 28\%$ RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from turbine first stage pressure), the main turbine bypass valves must remain closed during the calibration at THERMAL POWER $\geq 28\%$ RTP to ensure that the calibration is valid.

If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at $\geq 28\%$ 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.

Insert B → The frequency of 18 months is based on engineering judgment and reliability of the components.

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 MSIV — Closure, SDV Water Level — High (Float Switch), and TSV — Closure Functions, this SR also includes a physical inspection and actuation of the switches. For the APRM Simulated Thermal Power — High Function, this SR also includes calibrating the associated recirculation loop flow channel.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.13 (continued)

Note 1 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 effective full power hours LPRM calibration against the TIPs (SR 3.3.1.1.8). A second Note 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.

Insert C →

The Frequency of SR 3.3.1.1.13 is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.1.1.14

(Not used.)

SR 3.3.1.1.15

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 ²⁴18 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.

Insert D →

Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.15 (continued)

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

SR 3.3.1.1.16

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. This test may be performed in one measurement or in overlapping segments, with verification that all components are tested. The RPS RESPONSE TIME acceptance criteria are included in Reference 10.

RPS RESPONSE TIME for APRM two-out-of-four Voter Function 2.e includes the output relays of the voter and the associated RPS relays and contactors. (The digital portions of the APRM and two-out-of-four voter channels are excluded from RPS RESPONSE TIME testing because self-testing and calibration check the time base of the digital electronics.) Confirmation of the time base is adequate to assure required response times are met. Neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

Note 1 allows neutron detectors to be excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

Note 2 allows channel sensors for Reactor Vessel Steam Dome Pressure - High and Reactor Vessel Water Level - Low, Level 3 (Functions 3 and 4) to be excluded from RPS RESPONSE TIME testing. This allowance is supported by Reference 12 which concludes that any significant degradation of the channel sensor response time can be detected during the performance of other Technical Specifications SRs.

RPS RESPONSE TIME tests are conducted on an ²⁴~~18~~ month STAGGERED TEST BASIS. Note 3 requires STAGGERED TEST BASIS Frequency to be determined based on four channels per trip system, in lieu of the eight channels specified in Table 3.3.1.1-1 for the Main Steam Line Isolation

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.16 (continued)

Valve — Closure Function. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal. This Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences. ~~Insert E~~

SR 3.3.1.1.17

This SR ensures that scrams initiated from OPRM Upscale Function 2.f will not be inadvertently bypassed when THERMAL POWER, as indicated by APRM Simulated Thermal Power, is $\geq 25\%$ RTP and core flow, as indicated by recirculation drive flow, is $< 60\%$ rated core flow. This normally involves confirming the bypass setpoints. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. The actual Surveillance ensures that the OPRM Upscale Function is enabled (not bypassed) for the correct values of APRM Simulated Thermal Power and recirculation drive flow. Other Surveillances ensure that the APRM Simulated Thermal Power and recirculation flow properly correlate with THERMAL POWER and core flow, respectively.

If any bypass setpoint is nonconservative (i.e., the OPRM Upscale Function is bypassed when APRM Simulated Thermal Power is $\geq 25\%$ and recirculation drive flow is $< 60\%$ rated), then the affected channel is considered inoperable for the OPRM Upscale Function. Alternatively, the bypass setpoint may be adjusted to place the channel in a conservative condition (unbypass). If placed in the unbypass condition, this SR is met and the channel is considered OPERABLE.

Insert F → The 18 month Frequency is based on engineering judgment and component reliability.

REFERENCES

1. FSAR, Section 7.2.
2. FSAR, Chapter 15.
3. FSAR, Section 6.3.3.

(continued)

BASES

REFERENCES
(continued)

4. FSAR, Supplement 5A.
5. FSAR, Section 15.1.12.
6. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.
7. FSAR, Section 15.1.38.
8. P. Check (NRC) letter to G. Lainas (NRC), "BWR Scram Discharge System Safety Evaluation," December 1, 1980.
9. NEDO-30851-P-A, "Technical Specification Improvement Analyses for BWR Reactor Protection System," March 1988.
10. Technical Requirements Manual.
11. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
12. NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.
13. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.
14. NEDO-31960-A, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.
15. NEDO-31960-A, Supplement 1, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.
16. NEDO-32465-A, "BWR Owners' Group Long-Term Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications," March 1996.
17. NEDO-32410P-A, Supplement 1, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," November 1997.
18. Letter, L.A. England (BWROG) to M.J. Virgilio, "BWR Owners' Group Guidelines for Stability Interim Corrective Action," June 6, 1994.

Insert G
(Reference 19) →

Section B 3.3.1.1 Inserts

Insert A:

The 24 month Frequency of SR 3.3.1.1.12 is based on a review of the surveillance test history and Reference 19.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation, and Reference 19.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 19.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 19.

Insert E:

The 24 month Frequency, on a STAGGERED TEST BASIS, is also based on a review of the surveillance test history and Reference 19.

Insert F:

The 24 month Frequency is based on a review of the surveillance test history and Reference 19.

Insert G:

19. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6 (continued)

sufficiently removed from the fueled region of the core to essentially eliminate neutrons from reaching the detector. Any count rate obtained while the detectors are fully withdrawn is assumed to be "noise" only.

The Note to SR 3.3.1.2.6 allows the Surveillance to be delayed until entry into the specified condition of the Applicability (THERMAL POWER decreased to IRM Range 2 or below). The SR must be performed within 12 hours after IRMs are on Range 2 or below. The allowance to enter the Applicability with the 31 day Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels.

Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. In this event, the 12 hour Frequency is reasonable, based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

SR 3.3.1.2.7

24 ~~26~~ months verifies the performance of the SRM detectors and associated circuitry. The Frequency considers the plant conditions required to perform the test, the ease of performing the test, and the likelihood of a change in the system or component status. *Insert A* The neutron detectors are excluded from the CHANNEL CALIBRATION (Note 1) because they cannot readily be adjusted. The detectors are fission chambers that are designed to have a relatively constant sensitivity over the range and with an accuracy specified for a fixed useful life.

Note 2 to the Surveillance allows the Surveillance to be delayed until entry into the specified condition of the Applicability. The SR must be performed in MODE 2 within 12 hours of entering MODE 2 with IRMs on Range 2 or below.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.2.7 (continued)

The allowance to enter the Applicability with the ²⁴~~18~~ month Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels. Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. In this event, the 12 hour Frequency is reasonable, based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

REFERENCES

1. NRC Safety Evaluation Report for Amendment 125, April 30, 1993.

Insert B
(Reference 2) →

Section B 3.3.1.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 2.

Insert B:

2. NRC Safety Evaluation Report for Amendment ____.

BASES

BACKGROUND
(continued)

selected (Ref. 1). A rod block signal is also generated if an RBM Downscale trip or an Inoperable trip occurs. The Downscale trip will occur if the RBM channel signal decreases below the Downscale trip setpoint after the RBM signal has been normalized. The Inoperable trip will occur during the nulling (normalization) sequence, if: the RBM channel fails to null, too few LPRM inputs are available, a module is not plugged in, or the function switch is moved to any position other than "Operate."

The purpose of the RWM is to control rod patterns during startup and shutdown, such that only specified control rod sequences and relative positions are allowed over the operating range from all control rods inserted to 10% RTP. The sequences effectively limit the potential amount and rate of reactivity increase during a CRDA. Prescribed control rod sequences are stored in the RWM, which will initiate control rod withdrawal and insert blocks when the actual sequence deviates beyond allowances from the stored sequence. The RWM determines the actual sequence based position indication for each control rod. The RWM also uses ~~feedwater flow and steam flow~~ signals to determine when the reactor power is above the preset power level at which the RWM is automatically bypassed (Ref. 2). The RWM is a single channel system that provides input into both RMCS rod block circuits.

APRM Power →

With the reactor mode switch in the shutdown position, a control rod withdrawal block is applied to all control rods to ensure that the shutdown condition is maintained. This Function prevents inadvertent criticality as the result of a control rod withdrawal during MODE 3 or 4, or during MODE 5 when the reactor mode switch is required to be in the shutdown position. The reactor mode switch has two channels, each inputting into a separate RMCS rod block circuit. A rod block in either RMCS circuit will provide a control rod block to all control rods.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.1.4 (continued)

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 3.3.1.1.8. *The 18 month frequency is based on the actual trip setpoint methodology utilized for these channels.*

Insert A →

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 $\geq 10\%$ 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.*

APRM Power →

Insert B →

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.1.6 (continued)

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 18 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 SR.

²⁴
The ~~18~~ 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.

Insert C → ~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.~~

SR 3.3.2.1.7

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 3.3.1.1.8.

Insert D → ~~The Frequency is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.2.1.8

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.1.8 (continued)

OPERABLE following loading of sequence into RWM, since this is when rod sequence input errors are possible.

REFERENCES

1. FSAR, Section 7.6.2.2.5.
2. FSAR, Section 7.6.8.2.6.
3. NEDC-30474-P, "Average Power Range Monitor, Rod Block Monitor, and Technical Specification Improvements (ARTS) Program for Edwin I. Hatch Nuclear Plants," December 1983.
4. NEDE-24011-P-A-US, "General Electrical Standard Application for Reload Fuel," Supplement for United States, (revision specified in the COLR).
5. Letter from T.A. Pickens (BWROG) to G.C. Lainas (NRC), "Amendment 17 to General Electric Licensing Topical Report NEDE-24011-P-A," BWROG-8644, August 15, 1986.
6. NEDO-21231, "Banked Position Withdrawal Sequence," January 1977.
7. NRC SER, "Acceptance of Referencing of Licensing Topical Report NEDE-24011-P-A," "General Electric Standard Application for Reactor Fuel, Revision 8, Amendment 17," December 27, 1987.
8. NEDC-30851-P-A, "Technical Specification Improvement Analysis for BWR Control Rod Block Instrumentation," October 1988.
9. GENE-770-06-1, "Bases for Changes To Surveillance Test Intervals And Allowed Out-Of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
10. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
11. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.

Insert E
(Reference 12) →

Section B 3.3.2.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 12.

Insert B:

The 24 month Frequency is based on Reference 12.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 12.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 12.

Insert E:

12. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.2.1 (continued)

logic from the input of the alarm unit. This is consistent with the CHANNEL FUNCTIONAL TEST definition requiring the signal to be injected "as close to the sensor as practicable." Additionally, due to the physical location of the turbine trip relays and their close proximity to other sensitive equipment, accessibility is extremely limited. Verification of relay actuation and associated relay contact status by accessing the relay introduces a high potential for turbine trip and reactor scram. One contact from each turbine trip relay energizes an amber light indicating relay actuation. Therefore, it is acceptable to terminate the test at the turbine trip relay, utilizing light indication for relay status. These allowances are only acceptable if the CHANNEL CALIBRATION and the LOGIC SYSTEM FUNCTIONAL TEST overlap both the initiation and termination point of this CHANNEL FUNCTIONAL TEST such that the entire trip logic is tested.

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

SR 3.3.2.2.2

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.

Insert A → The frequency is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.2.2.3

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.2.3 (continued)

complete testing of the assumed safety function. Therefore, if a valve is incapable of operating, the associated instrumentation channels would also be inoperable. The 24 ~~18~~ month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.

Insert B →

REFERENCES

1. FSAR, Section 15.1.7.
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.

Insert C
(Reference 4) →

Section B 3.3.2.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 4.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert C:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.3.1.2

A CHANNEL CALIBRATION is performed every ~~18~~ months, ~~or~~
~~approximately at every refueling.~~ 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.

Insert A → ~~The Frequency is based on operating experience and
consistency with the typical industry refueling cycles.~~

REFERENCES

1. Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," Revision 2, December 1980.
2. NRC Safety Evaluation Report, "Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2, Conformance to Regulatory Guide 1.97," dated July 30, 1985.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B —
(Reference 4) →

Section B 3.3.3.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert B:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.3.2.1 (continued)

something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. As specified in the Surveillance, a CHANNEL CHECK is only required for those channels that are normally energized.

The Frequency is based upon plant operating experience that demonstrates channel failure is rare.

SR 3.3.3.2.2

SR 3.3.3.2.2 verifies each required Remote Shutdown System transfer switch and control circuit performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of equipment from the remote shutdown panel is not necessary. The Surveillance can be satisfied by performance of a continuity check, or in the case of the DG controls, the routine Surveillances of LCO 3.8.1 (since local control is utilized during the performance of some of the Surveillances of LCO 3.8.1). This will ensure that if the control room becomes inaccessible, the plant can be placed and maintained in MODE 3 from the remote shutdown panel and the local control stations. The 18 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 demonstrates

Insert A →

that Remote Shutdown System controls usually pass the Surveillance when performed at the 18 month Frequency.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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.

Insert B →

The 18 month Frequency is based upon operating experience and consistency with the typical industry refueling cycle.

REFERENCES

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

Insert C →
(Reference 4) →

Section B 3.3.3.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert C:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY
(continued)

Turbine Stop Valve — Closure

Closure of the TSVs and a main turbine trip result in the loss of a heat sink and increases reactor pressure, neutron flux, and heat flux that must be limited. Therefore, an RPT is initiated on a TSV — Closure signal before the TSVs are completely closed in anticipation of the effects that would result from closure of these valves. EOC-RPT decreases reactor power and aids the reactor scram in ensuring that the MCPR SL is not exceeded during the worst case transient.

Closure of the TSVs is determined by measuring the position of each valve. While there are two separate position switches associated with each stop valve, only the signal from one switch for each TSV is used, with each of the four channels being assigned to a separate trip channel. The logic for the TSV — Closure Function is such that two or more TSVs must be closed to produce an EOC-RPT. This Function must be enabled at THERMAL POWER \geq 28% RTP. This is normally accomplished automatically by pressure *Switches* ~~transmitters~~ sensing turbine first stage pressure; therefore, opening of the turbine bypass valves may affect this Function. Four channels of TSV — Closure, with two channels in each trip system, are available and required to be OPERABLE to ensure that no single instrument failure will preclude an EOC-RPT from this Function on a valid signal. The TSV — Closure Allowable Value is selected to detect imminent TSV closure.

This protection is required, consistent with the safety analysis assumptions, whenever THERMAL POWER is \geq 28% RTP. Below 28% RTP, the Reactor Vessel Steam Dome Pressure — High and the Average Power Range Monitor (APRM) Neutron Flux — High Functions of the Reactor Protection System (RPS) are adequate to maintain the necessary margin to the MCPR Safety Limit.

Turbine Control Valve Fast Closure, Trip Oil Pressure — Low

Fast closure of the TCVs during a generator load rejection results in the loss of a heat sink that produces reactor pressure, neutron flux, and heat flux transients that must be limited. Therefore, an RPT is initiated on TCV Fast Closure, Trip Oil Pressure — Low in anticipation of the transients that would result from the closure of these

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

Turbine Control Valve Fast Closure. Trip Oil Pressure — Low
(continued)

valves. The EOC-RPT decreases reactor power and aids the reactor scram in ensuring that the MCPR SL is not exceeded during the worst case transient.

Fast closure of the TCVs is determined by measuring the electrohydraulic control fluid pressure at each control valve. There is one pressure ~~transmitter~~ associated with each control valve, and the signal from each ~~transmitter~~ is assigned to a separate trip channel. The logic for the TCV Fast Closure, Trip Oil Pressure — Low Function is such that two or more TCVs must be closed (pressure transmitter trips) to produce an EOC-RPT. This Function must be enabled at THERMAL POWER \geq 28% RTP. This is normally accomplished automatically by pressure ~~transmitters~~ sensing turbine first stage pressure; therefore, opening of the turbine bypass valves may affect this Function. Four channels of TCV Fast Closure, Trip Oil Pressure — Low, with two channels in each trip system, are available and required to be OPERABLE to ensure that no single instrument failure will preclude an EOC-RPT from this Function on a valid signal. The TCV Fast Closure, Trip Oil Pressure — Low Allowable Value is selected high enough to detect imminent TCV fast closure.

switches

switch

This protection is required consistent with the safety analysis whenever THERMAL POWER is \geq 28% RTP. Below 28% RTP, the Reactor Vessel Steam Dome Pressure — High and the APRM Neutron Flux — High Functions of the RPS are adequate to maintain the necessary margin to the MCPR Safety Limit.

ACTIONS

A Note has been provided to modify the ACTIONS related to EOC-RPT instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable EOC-RPT instrumentation channels provide

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the recirculation pumps will trip when necessary.

SR 3.3.4.1.1

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 of Reference 4.

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 $\geq 28\%$ RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from first stage pressure) the main turbine bypass valves must remain closed during the calibration at THERMAL POWER $\geq 28\%$ RTP to ensure that the calibration is valid. If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at $\geq 28\%$ 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 (Turbine Stop Valve—Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure—Low Functions are enabled), this SR is met with the channel considered OPERABLE.

Insert A → The Frequency of 18 months is based on engineering judgment and the reliability of the components.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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. For the TSV-Closure Function, this SR also includes a physical inspection and actuation of the switches.

Insert B →

The Frequency is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

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.

²⁴

The ²⁴18 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.

Insert C →

Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.

SR 3.3.4.1.5

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The EOC-RPT SYSTEM RESPONSE TIME acceptance criteria are included in Reference 5.

A Note to the Surveillance states that breaker interruption (i.e., trip) time may be assumed from the most recent performance of SR 3.3.4.1.6. This is allowed since the time

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.4.1.5 (continued)

to open the contacts after energization of the trip coil and the arc suppression time are short and do not appreciably change, due to the design of the breaker opening device and the fact that the breaker is not routinely cycled.

EOC-RPT SYSTEM RESPONSE TIME tests are conducted on ^aan ~~an~~ 24 ~~60~~ month STAGGERED TEST BASIS. Response times cannot be determined at power because operation of final actuated devices is required. Therefore, this Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components that cause serious response time degradation, but not channel failure, are infrequent occurrences. *← Insert D*

SR 3.3.4.1.6

This SR ensures that the RPT breaker interruption time is provided to the EOC-RPT SYSTEM RESPONSE TIME test. Breaker interruption (i.e., trip) time is defined as breaker response time plus arc suppression time. Breaker response time is the time from application of voltage to the trip coil until the main contacts separate. Arc suppression time is the time from main contact separation until the complete suppression of the electrical arc across the open contacts. Breaker response shall be verified by testing and added to the manufacturer's design arc suppression time to determine breaker interruption time. The breaker arc suppression time shall be validated by the performance of periodic contact gap measurements in accordance with plant procedures. The 60 month Frequency of the testing is based on the difficulty of performing the test and the reliability of the circuit breakers.

REFERENCES

1. FSAR, Section 7.6.10.
2. FSAR, Sections 15.1.1, 15.1.2, and 15.1.3.
3. FSAR, Sections 5.5.16.1 and 7.6.10.

(continued)

BASES

REFERENCES
(continued)

4. GENE-770-06-1, "Bases For Changes To Surveillance Test Intervals And Allowed Out-Of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
5. Technical Requirements Manual.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert E
(Reference 7) →

Section B 3.3.4.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation, and Reference 7.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation (if applicable), and Reference 7.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 7.

Insert D:

The 24 month Frequency, on a STAGGERED TEST BASIS, is also based on a review of the surveillance test history and Reference 7.

Insert E:

7. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.4.2.1 (continued)

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

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

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.

Insert A →

The Frequency is based upon the assumption of an 18 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.

²⁴
The ~~18~~ 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.

Insert B → ~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.~~

REFERENCES

1. FSAR, Section 7.6.10.7.
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.

Insert C
(Reference 4) →

Section B 3.3.4.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 4.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert C:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

3.e. Suppression Pool Water Level — High (continued)

HPCI is to be utilized, since the long term use of HPCI during a DBA requires the HPCI suction source to be the suppression pool. As such, this Function meets Criterion 4 of the NRC Policy Statement (Ref. 7).

transmitters

Suppression Pool Water Level — High signals are initiated from two level ~~switches~~. The Allowable Value for the Suppression Pool Water Level — High Function is chosen to ensure that HPCI will be aligned for suction from the suppression pool before the water level reaches the point at which suppression pool design loads would be exceeded.

Two channels of Suppression Pool Water Level — High Function are required to be OPERABLE only when HPCI is required to be OPERABLE to ensure that no single instrument failure can preclude HPCI swap to suppression pool source. Refer to LCO 3.5.1 for HPCI Applicability Bases.

3.f. High Pressure Coolant Injection Pump Discharge
Flow — Low (Bypass)

The minimum flow instruments are provided to protect the HPCI pump from overheating when the pump is operating and the associated injection valve is not fully open. The minimum flow line valve is opened when low flow is sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump. While HPCI is not assumed to be OPERABLE in any DBA or transient analysis, the High Pressure Coolant Injection Pump Discharge Flow — Low Function is capable of closing the minimum flow valve to ensure that the HPCI flow provided, if HPCI is utilized during the transients and accidents analyzed in References 1, 2, and 3, is adequate. The core cooling function of the ECCS, along with the scram action of the RPS, ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46. Therefore, this Function meets Criterion 4 of the NRC Policy Statement (Ref. 7).

One flow transmitter is used to detect the HPCI System's flow rate. The logic is arranged such that the transmitter causes the minimum flow valve to open. The logic will close the minimum flow valve once the closure setpoint is exceeded.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.5.1.2 and SR 3.3.5.1.3

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.

92 day Frequency
of SR 3.3.5.1.2

The Frequency of 92 days is based on the reliability analyses of Reference 5.

Insert A

SR 3.3.5.1.3 and SR 3.3.5.1.4

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.

Insert B

The Frequency of SR 3.3.5.1.3 and SR 3.3.5.1.4 is based upon the assumption of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.5.1.5

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, LCO 3.8.1, and LCO 3.8.2 overlaps this Surveillance to complete testing of the assumed safety function.

The ²⁴18 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.

Insert C

Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

REFERENCES

1. FSAR, Section 5.2.
2. FSAR, Section 6.3.
3. FSAR, Chapter 15.
4. NEDC-31376-P, "Edwin I. Hatch Nuclear Power Plant, SAFER/GESTR-LOCA, Loss-of-Coolant Accident Analysis," December 1986.
5. NEDC-30936-P-A, "BWR Owners' Group Technical Specification Improvement Analyses for ECCS Actuation Instrumentation, Part 2," December 1988.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert D
(Reference 7) →

Section B 3.3.5.1 Inserts

Insert A:

The 24 month Frequency of SR 3.3.5.1.3 is based on a review of the surveillance test history and Reference 7.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 7.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 7.

Insert D:

7. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.5.2.1 (continued)

channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

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

SR 3.3.5.2.2 and SR 3.3.5.2.3

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.

92 day Frequency
of SR 3.3.5.2.2

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

Insert A

~~SR 3.3.5.2.3 and SR 3.3.5.2.4~~

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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

~~SR 3.3.5.2.3 and SR 3.3.5.2.4 (continued)~~

Insert B → ~~The Frequency of SR 3.3.5.2.3 and SR 3.3.5.2.4 is based upon the assumption of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.5.2.5

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~~18~~ 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.

Insert C → ~~Operating experience has shown that these components usually pass the Surveillance when performed at the 18 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.

Insert D
(Reference 3) →

Section B 3.3.5.2 Inserts

Insert A:

The 24 month Frequency of SR 3.3.5.2.3 is based on a review of the surveillance test history and Reference 3.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 3.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 3.

Insert D:

3. NRC Safety Evaluation Report for Amendment ____.

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

1.b. Main Steam Line Pressure — Low (continued)

the closure of the MSIVs ensures that the RPV temperature change limit (100°F/hr) is not reached. In addition, this Function supports actions to ensure that Safety Limit 2.1.1.1 is not exceeded. (This Function closes the MSIVs prior to pressure decreasing below 785 psig, which results in a scram due to MSIV closure, thus reducing reactor power to < 25% RTP.)

switches → The MSL low pressure signals are initiated from four ~~transmitters~~ *switch* that are connected to the MSL header. The ~~transmitters~~ are arranged such that, even though physically separated from each other, each ~~transmitter~~ is able to detect low MSL pressure. Four channels of Main Steam Line Pressure — Low Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value was selected to be high enough to prevent excessive RPV depressurization.

The Main Steam Line Pressure — Low Function is only required to be OPERABLE in MODE 1 since this is when the assumed transient can occur (Ref. 2).

This Function isolates the Group 1 valves.

1.c. Main Steam Line Flow — High

Main Steam Line Flow — High is provided to detect a break of the MSL and to initiate closure of the MSIVs. If the steam were allowed to continue flowing out of the break, the reactor would depressurize and the core could uncover. If the RPV water level decreases too far, fuel damage could occur. Therefore, the isolation is initiated on high flow to prevent or minimize core damage. The Main Steam Line Flow — High Function is directly assumed in the analysis of the main steam line break (MSLB) (Ref. 2). The isolation action, along with the scram function of the Reactor Protection System (RPS), ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46 and offsite doses do not exceed the 10 CFR 100 limits.

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

1.c. Main Steam Line Flow — High (continued)

The MSL flow signals are initiated from 16 transmitters that are connected to the four MSLs. The transmitters are arranged such that, even though physically separated from each other, all four connected to one MSL would be able to detect the high flow. Four channels of Main Steam Line Flow — High Function for each unisolated MSL (two channels per trip system) are available and are required to be OPERABLE so that no single instrument failure will preclude detecting a break in any individual MSL.

The Allowable Value is chosen to ensure that offsite dose limits are not exceeded due to the break. The Allowable Value corresponds to ≤ 183 psid, which is the parameter monitored on control room instruments.

This Function isolates the Group 1 valves.

1.d. Condenser Vacuum — Low

The Condenser Vacuum — Low Function is provided to prevent overpressurization of the main condenser in the event of a loss of the main condenser vacuum. Since the integrity of the condenser is an assumption in offsite dose calculations, the Condenser Vacuum — Low Function is assumed to be OPERABLE and capable of initiating closure of the MSIVs. The closure of the MSIVs is initiated to prevent the addition of steam that would lead to additional condenser pressurization and possible rupture of the diaphragm installed to protect the turbine exhaust hood, thereby preventing a potential radiation leakage path following an accident.

Condenser vacuum ^{switches} pressure signals are derived from four pressure ~~transmitters~~ that sense the pressure in the condenser. Four channels of Condenser Vacuum — Low Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value is chosen to prevent damage to the condenser due to pressurization, thereby ensuring its integrity for offsite dose analysis. As noted (footnote (a) to Table 3.3.6.1-1), the channels are not required to be

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the PCIVs will isolate the penetration flow path(s) when necessary.

SR 3.3.6.1.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Frequency is based on 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 3.3.6.1.2 and SR 3.3.6.1.4

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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.6.1.2 and SR 3.3.6.1.4 (continued)

The 92 day Frequency of SR 3.3.6.1.2 is based on the reliability analysis described in References 4 and 5. The 184 day Frequency of SR 3.3.6.1.4 is based on engineering judgment and the reliability of the components (time delay relays exhibit minimal drift).

, SR 3.3.6.1.4

SR 3.3.6.1.3 and SR 3.3.6.1.5

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 Frequency of SR 3.3.6.1.3 and SR 3.3.6.1.5 is based on the assumption of the magnitude of equipment drift in the setpoint analysis.

Insert A

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 24 ~~18~~ month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.

Insert B

SR 3.3.6.1.7

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The instrument response times must be added to the PCIV closure times to obtain the ISOLATION SYSTEM RESPONSE TIME.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.6.1.7 (continued)

ISOLATION SYSTEM RESPONSE TIME acceptance criteria are included in Reference 6. This test may be performed in one measurement, or in overlapping segments, with verification that all components are tested.

A Note to the Surveillance states that the channel sensors are excluded from ISOLATION SYSTEM RESPONSE TIME testing. The exclusion of the channel sensors is supported by Reference 8 which indicates that the sensors' response times are a small fraction of the total response time. Even if the sensors experienced response time degradation, they would be expected to respond in the microsecond to millisecond range until complete failure.

ISOLATION SYSTEM RESPONSE TIME tests are conducted on ^aan ~~18~~ month STAGGERED TEST BASIS. This Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience that shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences. ← *Insert C*

REFERENCES

1. FSAR, Section 6.3.
2. FSAR, Chapter 15.
3. FSAR, Section 4.2.3.4.2.
4. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
5. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.
6. Technical Requirements Manual.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
8. NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.

Insert D
(Reference 9) →

Section B 3.3.6.1 Inserts

Insert A:

The 184 day Frequency of SR 3.3.6.1.4 and the 24 month Frequency of SR 3.3.6.1.5 are based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 9.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 9.

Insert C:

The 24 month Frequency, on a STAGGERED TEST BASIS, is also based on a review of the surveillance test history and Reference 9.

Insert D:

9. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.6.2.3 and SR 3.3.6.2.4

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.

The Frequencies^y of SR 3.3.6.2.3 and SR 3.3.6.2.4^{is} are based on the assumption of the magnitude of equipment drift in the setpoint analysis. ← Insert A

SR 3.3.6.2.5

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.

This
While this Surveillance can be performed with the reactor at power for some of the Functions, operating experience has shown that these components usually pass the Surveillance when performed at the 18 month frequency. Therefore, the frequency was found to be acceptable from a reliability standpoint.

Insert B →

REFERENCES

1. FSAR, Section 6.3.
2. FSAR, Chapter 15.
3. FSAR, Section 15.1.40.
4. FSAR, Sections 15.1.39 and 15.1.41.
5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.

(continued)

BASES

REFERENCES
(continued)

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.

Insert C
(Reference 8) →

Section B 3.3.6.2 Inserts

Insert A:

The 24 month Frequency of SR 3.3.6.2.4 is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 8.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert C:

8. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.6.3.2, SR 3.3.6.3.3, and SR 3.3.6.3.4 (continued)

A portion of the S/RV tailpipe pressure switch instrument channels are located inside the primary containment. The Note for SR 3.3.6.3.3, "Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment," is based on the location of these instruments, ALARA considerations, and compatibility with the Completion Time of the associated Required Action (Required Action B.1).

SR 3.3.6.3.5

CHANNEL CALIBRATION is a complete check of the instrument loop and 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.

Insert A →

~~The Frequency of once every 18 months for SR 3.3.6.3.5 is based on the assumption of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.6.3.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specified channel. The system functional testing performed in LCO 3.4.3, "Safety/Relief Valves(S/RVs) and LCO 3.6.1.8, "Low-Low Set (LLS) Safety/Relief Valves (S/RVs)," for S/RVs overlaps this test to provide complete testing of the assumed safety function.

²⁴

The Frequency of once every ~~18~~ months for SR 3.3.6.3.6 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.

Insert B →

~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.~~

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 7.4.4.
2. FSAR, Section 5.5.17.
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. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

*Insert C
(Reference 5)* →

Section B 3.3.6.3 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 5.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert C:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.7.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.7.4, "Main Control Room Environmental Control (MCREC) System," overlaps this Surveillance to provide complete testing of the assumed safety function.

This

~~While this Surveillance can be performed with the reactor at power, operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.~~

Insert A →

REFERENCES

1. FSAR, Section 7.3.5
2. FSAR, Chapter 6.
3. FSAR, Section 6.4.1.2.2.
4. FSAR, Chapter 15.
5. FSAR, Table 15.1.28.
6. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 8) →

Section B 3.3.7.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert B:

8. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.8.2.2

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.

Insert A →

The Frequency is based on the assumption of the magnitude of equipment drift in the setpoint analysis.

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 circuit breakers is included as part of this test to provide complete testing of the safety function. If the breakers are incapable of operating, the associated electric power monitoring assembly would be inoperable.

Insert B →

The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 8.3.1.1.4.B.
2. NRC Generic Letter 91-09, "Modification of Surveillance Interval for the Electrical Protective Assemblies in Power Supplies for the Reactor Protection System."
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert C
(Reference 4) →

Section B 3.3.8.2 Inserts

Insert A:

The 184 day Frequency is based on Reference 4.

Insert B:

The 184 day Frequency is based on Reference 4.

Insert C:

4. NRC Safety Evaluation Report for Amendment ____.

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.4.3.1

This Surveillance requires that the S/RVs will open at the pressures assumed in the safety analysis of Reference 1. The demonstration of the S/RV safety lift settings must be performed during shutdown, since this is a bench test, to be done in accordance with the Inservice Testing Program. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint is $\pm 3\%$ for OPERABILITY; however, the valves are reset to $\pm 1\%$ during the Surveillance to allow for drift.

The Frequency ~~Performance~~ of this SR ^{is} in accordance with the Inservice Testing Program, requires an 18 month Frequency. The 18 month Frequency was selected because this Surveillance must be performed during shutdown conditions and is based on the time between refuelings.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.4.5.2

This SR is for the performance of a CHANNEL FUNCTIONAL TEST of the required RCS leakage detection instrumentation. The test ensures that the monitors can perform their function in the desired manner. The test also verifies the alarm setpoint and relative accuracy of the instrument string. The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.

SR 3.4.5.3

This SR is for the performance of a CHANNEL CALIBRATION of required leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside containment. The Frequency of 18 months is a typical refueling cycle and considers channel reliability. Operating experience has proven this Frequency is acceptable.

Insert A →

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
2. FSAR, Section 5.2.7.2.1.
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 of Boiling Water Reactors," October 1975.
5. FSAR, Section 5.2.7.5.2.
6. NRC Safety Evaluation Report for Amendment 125, April 30, 1993.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B →
(Reference 8) →

Section B 3.4.5 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert B:

8. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9 (continued)

valves to continue to control reactor pressure when the HPCI System diverts steam flow. The reactor steam pressure must be ≥ 920 psig to perform SR 3.5.1.8 and ≥ 150 psig to perform SR 3.5.1.9. Adequate steam flow for SR 3.5.1.8 is represented by at least two turbine bypass valves open, or ≥ 200 MWE from the main turbine-generator; and for SR 3.5.1.9 adequate steam flow is represented by at least 1.25 turbine bypass valves open, or total steam flow $\geq 1E6$ lb/hr. Therefore, sufficient time is allowed after adequate 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. 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 3.5.1.8 and SR 3.5.1.9 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 12 hours allowed is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR.

The Frequency for ²⁴SR 3.5.1.7 and SR 3.5.1.8 is consistent with the Inservice Testing Program pump testing requirements. The ¹⁸month Frequency for SR 3.5.1.9 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 has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert A →

SR 3.5.1.10

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.10 (continued)

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 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.

²⁴
The ~~18~~ 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.

Insert B →

Operating experience has shown that these components usually pass the SR when performed at the 18 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.

SR 3.5.1.11

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 3.5.1.12 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.

²⁴
The ~~18~~ month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.11 (continued)

outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Insert C →

Operating experience has shown that these components usually pass the SR when performed at the 18 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.

SR 3.5.1.12

The pneumatic actuator of each ADS valve is stroked to verify that the pilot disc rod lifts when the actuator strokes. Pilot rod lift is determined by measurement of rod travel. The total amount of lift of the pilot rod from the valve closed position to the open position shall meet criteria established by the S/RV supplier. SRs 3.5.1.11 and 3.3.5.1.5 overlap this SR to provide testing of the S/RV relief mode function. Additional functional testing is performed by tests required by the ASME OM Code (Ref. 17).

Insert D →

The Frequency of 18 months is based on the S/RV tests required by the ASME OM Code (Ref. 17). Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.5.1.13

This SR ensures that the ECCS RESPONSE TIMES are less than or equal to the maximum values assumed in the accident analysis. Response time testing acceptance criteria are included in Reference 14. A Note to the Surveillance states that the instrumentation portion of the response time may be assumed from established limits. The exclusion of the instrumentation from the response time surveillance is supported by Reference 15, which concludes that instrumentation will continue to respond in the microsecond to millisecond range prior to complete failure.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.13 (continued)

24

The 18 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.

Insert E →

~~Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

REFERENCES

1. FSAR, Section 6.3.2.2.3.
2. FSAR, Section 6.3.2.2.4.
3. FSAR, Section 6.3.2.2.1.
4. FSAR, Section 6.3.2.2.2.
5. FSAR, Section 15.1.39.
6. FSAR, Section 15.1.40.
7. FSAR, Section 15.1.33.
8. 10 CFR 50, Appendix K.
9. FSAR, Section 6.3.3.
10. NEDC-31376P, "E.I. Hatch Nuclear Plant Units 1 and 2 SAFER/GESTR-LOCA Loss-of-Coolant Analysis," December 1986.
11. 10 CFR 50.46.
12. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.
13. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
14. Technical Requirements Manual.

(continued)

BASES

REFERENCES
(continued)

15. NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.
16. NEDC-32041P, "Safety Review for Edwin I. Hatch Nuclear Power Plant Units 1 and 2 Updated Safety/Relief Valve Performance Requirements," April 1996.
17. ASME, OM Code - 1995, "Code for Operation and Maintenance of Nuclear Power Plants," Appendix I.

Insert F
(Reference 18) →

Section B 3.5.1 Inserts

Insert A:

The 24 month Frequency of SR 3.5.1.9 is based on a review of the surveillance test history and Reference 18.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 18.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 18.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 18.

Insert E:

The 24 month Frequency is based on a review of the surveillance test history and Reference 18.

Insert F:

18. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

24

sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. A 92 day Frequency for SR 3.5.3.3 is consistent with the Inservice Testing Program requirements. The ~~18~~ 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 has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert A →

SR 3.5.3.5

The RCIC System is required to actuate automatically in order to verify 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 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 3.3.5.2 overlaps this Surveillance to provide complete testing of the assumed safety function.

24

The ~~18~~ month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert B →

(continued)

BASES

**SURVEILLANCE
REQUIREMENTS**

SR 3.5.3.5 (continued)

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.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 33.
2. FSAR, Section 5.5.6.
3. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.
4. GE Report AES-41-0688, "Safety Evaluation for Relaxation of RCIC Performance Requirements for Plant Hatch Units 1 and 2," July 1988.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert C
(Reference 6) →

Section B 3.5.3 Inserts

Insert A:

The 24 month Frequency of SR 3.5.3.4 is based on a review of the surveillance test history and Reference 6.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 6.

Insert C:

6. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.1.1 (continued)

leakage (SR 3.6.1.3.11) does not necessarily result in a failure of this SR. The impact of the failure to meet these SRs must be evaluated against the Type A, B, and C acceptance criteria of the Primary Containment Leakage Rate Testing Program. The Primary Containment Leakage Rate Testing Program is based on the guidelines in Regulatory Guide 1.163 (Ref. 6), NEI 94-01 (Ref. 7), and ANSI/ANS-56.8-1994 (Ref. 8). Specific acceptance criteria for as found and as left leakage rates, as well as the methods of defining the leakage rates, are contained in the Primary Containment Leakage Rate Testing Program. At all other times between required leakage rate tests, the acceptance criteria are based on an overall Type A leakage limit of 1.0 L_a. At 1.0 L_a, the offsite dose consequences are bounded by the assumptions of the safety analysis. The Frequency is required by the Primary Containment Leakage Rate Testing Program.

SR 3.6.1.1.2

Maintaining the pressure suppression function of primary containment requires limiting the leakage from the drywell to the suppression chamber. Thus, if an event were to occur that pressurized the drywell, the steam would be directed through the downcomers into the suppression pool. This SR measures drywell to suppression chamber differential pressure during a 10 minute period to ensure that the leakage paths that would bypass the suppression pool are within allowable limits.

24 — 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 18 months. The 18 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. Two consecutive test failures, however, would indicate *Insert A*

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.1.2 (continued)

unexpected primary containment degradation; in this event, as the Note indicates, increasing the Frequency to once every 9 months is required until the situation is remedied as evidenced by passing two consecutive tests.

REFERENCES

1. FSAR, Section 6.2.
2. FSAR, Section 15.1.39.
3. 10 CFR 50, Appendix J, Option B.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. Primary Containment Leakage Rate Testing Program.
6. Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," September 1995.
7. NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, July 26, 1995.
8. ANSI/ANS-56.8-1994, "American National Standard for Containment System Leakage Testing Requirements," 1994.

Insert B
(Reference 9) →

Section B 3.6.1.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 9.

Insert B:

9. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.1.3.5

Verifying the isolation time of each power operated and each automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that each valve will isolate in a time period less than or equal to that listed in the FSAR and that no degradation affecting valve closure since the performance of the last surveillance has occurred. (EFCVs are not required to be tested because they have no specified time limit). The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 100 limits. The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

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 SR 3.3.6.1.6 overlaps this SR to provide complete testing of the safety function. The ~~18~~ 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 has shown that these components usually pass this Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert A →

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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 reduces flow to within limits on an actual or simulated instrument line break condition. This SR provides assurance that the instrumentation line EFCVs will perform as designed. The 24 ~~18~~ 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.

Insert B → Operating experience has shown that these components usually pass this Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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 ~~18 months~~ 24 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).

Insert C →

SR 3.6.1.3.10

This SR ensures that the leakage rate of secondary containment bypass leakage paths is less than the specified leakage rate. This provides assurance that the assumptions in the radiological evaluations that form the basis of the FSAR (Ref. 3) are met. The secondary containment bypass leakage paths are: 1) main steam condensate drain, penetration 8; 2) reactor water cleanup, penetration 14; 3) equipment drain sump discharge, penetration 18; 4) floor drain sump discharge, penetration 19; and 5) chemical drain sump discharge, penetration 55. The leakage rate of each bypass leakage path is assumed to be the maximum pathway

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.1.3.12

24

The valve seats of each 18 inch purge valve (supply and exhaust) having resilient material seats must be replaced every 18 months. This will allow the opportunity for repair before gross leakage failure develops. The 18 month

Insert D →

Frequency is based on engineering judgment and operational experience which shows that gross leakage normally does not occur when the valve seats are replaced on an 18 month Frequency.

SR 3.6.1.3.13

The Surveillance Requirement provides assurance that the excess flow isolation dampers can close following an isolation signal. The 18 month Frequency is based on vendor recommendations and engineering judgment. Operating experience has shown that these dampers usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert E →

REFERENCES

1. FSAR, Chapter 15.
2. Technical Requirements Manual.
3. FSAR, Section 15.1.39.
4. FSAR, Section 6.2.
5. 10 CFR 50, Appendix J, Option B.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
7. Primary Containment Leakage Rate Testing Program.

Insert F →
(Reference 8) →

Section B 3.6.1.3 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert E:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert F:

8. NRC Safety Evaluation Report for Amendment ____.

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.6.1

The pneumatic actuator of each LLS valve is stroked to verify that the pilot disc rod lifts when the actuator strokes. Pilot rod lift is determined by measurement of rod travel. The total amount of lift of the pilot rod from the valve closed position to the open position shall meet criteria established by the S/RV supplier. SRs 3.6.1.6.2 and 3.3.6.3.6 overlap this SR to provide testing of the S/RV relief mode function. Additional functional testing is performed by tests required by the ASME OM Code (Ref. 2).

Insert A → ~~Also, the Frequency of 18 months is based on the S/RV tests required by the OM Code.~~

SR 3.6.1.6.2

The LLS designated S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to verify that the mechanical portions (i.e., solenoids) of the LLS function operate as designed when initiated either by an actual or simulated automatic initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.3.6 overlaps this SR to provide complete testing of the safety function.

²⁴
The ~~18~~ 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.

Insert B ~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. 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 a reactor pressure vessel pressure blowdown.

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 5.5.17.
2. ASME, OM Code - 1995, "Code for Operation and Maintenance of Nuclear Power Plants," Appendix I.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. NEDC-32041P, "Safety Review for Edwin I. Hatch Nuclear Power Plant Units 1 and 2 Updated Safety/Relief Valve Performance Requirements," April 1996.

Insert C
(Reference 5) →

Section B 3.6.1.6 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert C:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.1.7.3

24

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 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency and is further justified because of other Surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.

Insert A →

REFERENCES

1. FSAR, Section 6.2.1.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 3) →

Section B 3.6.1.7 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 3.

Insert B:

3. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.1.8.2

Each required (i.e., required to be OPERABLE for opening) vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The 31 day Frequency of this SR was developed, based on Inservice Testing Program requirements to perform valve testing at least once every 92 days. A 31 day Frequency was chosen to provide additional assurance that the vacuum breakers are OPERABLE, since they are located in a harsh environment (the suppression chamber airspace). In addition, this functional test is required within 12 hours after a discharge of steam to the suppression chamber from the safety/relief valves.

SR 3.6.1.8.3

Verification of the 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 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency, and is further justified because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.

Insert A →

24

It

REFERENCES

1. FSAR, Section 6.2.1.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
3. Technical Requirements Manual.

Insert B
(Reference 4) →

Section B 3.6.1.8 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert B:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

ACTIONS
(continued)

C.1

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

SURVEILLANCE
REQUIREMENTS

SR 3.6.3.1.1

Performance of a system functional test for each primary containment hydrogen recombinder ensures that the recombiners are OPERABLE and can attain and sustain the temperature necessary for hydrogen recombination. In particular, this SR verifies that the minimum heater sheath temperature increases to $\geq 1200^{\circ}\text{F}$ in ≤ 1.5 hours and that it is maintained $> 1150^{\circ}\text{F}$ and $< 1300^{\circ}\text{F}$ for ≥ 4 hours thereafter to check the ability of the recombinder to function properly (and to make sure that significant heater elements are not burned out). Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert A →

SR 3.6.3.1.2

This SR ensures there are no physical problems that could affect recombinder operation. Since the recombiners are mechanically passive, except for the blower assemblies, they are subject to only minimal mechanical failure. The only credible failures involve loss of power or blower function, blockage of the internal flow path, missile impact, etc.

A visual inspection is sufficient to determine abnormal conditions that could cause such failures. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert B →

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.3.1.3

This SR requires performance of a resistance to ground test of each heater phase to make sure that there are no detectable grounds in any heater phase. This is accomplished by verifying that the resistance to ground for any heater phase is $\geq 1,000,000$ ohms.

Insert C → ~~Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

REFERENCES

1. 10 CFR 50.44.
2. 10 CFR 50, Appendix A, GDC 41.
3. Regulatory Guide 1.7, Revision 0, March 1971.
4. FSAR, Section 6.2.5.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert D
(Reference 6) →

Section B 3.6.3.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 6.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 6.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 6.

Insert D:

6. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.4.1.3 and SR 3.6.4.1.4

The Unit 1 and Unit 2 SGT Systems 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 appropriate SGT System(s) will rapidly establish and maintain a negative pressure in the secondary containment. This is confirmed by demonstrating that the required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch 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 the required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge for 1 hour at a flow rate ≤ 4000 cfm for each SGT subsystem. The 1 hour test period allows secondary containment to be in thermal equilibrium at steady state 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 SGT subsystem. 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, each SGT subsystem or combination of subsystems will perform this test. The number of SGT subsystems and the required combinations are dependent on the configuration of the secondary containment and are detailed in the Technical Requirements Manual (Ref. 3). The Note to SR 3.6.4.1.3 and SR 3.6.4.1.4 specifies that the number of required SGT subsystems be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration.

Insert A → ~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

REFERENCES

1. FSAR, Section 15.1.39.
2. FSAR, Section 15.1.41.
3. Technical Requirements Manual.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B →
(Reference 5)

Section B 3.6.4.1 Inserts

Insert A:

The 24 month Frequency, on a STAGGERED TEST BASIS, of SRs 3.6.4.1.3 and 3.6.4.1.4 is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.4.2.2

Verifying that the isolation time of each power operated and each 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 was developed based upon engineering judgment and the similarity to PCIVs.

SR 3.6.4.2.3

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 SR 3.3.6.2.5 overlaps this SR to provide complete testing of the safety function. The 18 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. *Insert A* → ~~experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~ 24

REFERENCES

1. FSAR, Section 15.1.39.
2. FSAR, Section 15.1.41.
3. Technical Requirements Manual.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B →
(Reference 5)

Section B 3.6.4.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

ACTIONS

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

operations. Therefore, in either case, inability to suspend movement of irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE
REQUIREMENTS

SR 3.6.4.3.1

Operating each required Unit 1 and Unit 2 SGT subsystem for ≥ 10 continuous hours ensures that they are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. Operation with the heaters on for ≥ 10 continuous hours every 31 days eliminates moisture on the adsorbers and HEPA filters. The 31 day Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.

SR 3.6.4.3.2

This SR verifies that the required Unit 1 and Unit 2 SGT filter testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.6.4.3.3

This SR verifies that each required Unit 1 and Unit 2 SGT subsystem starts on receipt of an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.2.5 overlaps this SR to provide complete testing of the safety function. ~~While this~~ Surveillance can be performed with the reactor at power. ~~operating experience~~

This

Insert A

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.4.3.3 (continued)

has shown that these components usually pass the surveillance when performed at the 18 month frequency. Therefore, the frequency was found to be acceptable from a reliability standpoint.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 41.
2. Unit 1 FSAR, Section 5.3.
3. FSAR, Section 6.2.3.
4. FSAR, Section 15.1.39.
5. FSAR, Section 15.1.41
6. Technical Requirements Manual
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 8) →

Section B 3.6.4.3 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 8.

Insert B:

8. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.2.2 (continued)

This SR is modified by a Note indicating that isolation of the PSW System to components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the PSW System. As such, when all PSW pumps, valves, and piping are OPERABLE, but a branch connection off the main header is isolated, the PSW System is still OPERABLE.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 3.7.2.3

This SR verifies that the automatic isolation valves of the PSW System will automatically switch to the safety or emergency position to provide cooling water exclusively to the safety related equipment during an accident event. This is demonstrated by the use of an actual or simulated initiation signal. This SR also verifies the automatic start capability (on a LOCA or LOSP signal) of one of the two PSW pumps in each subsystem.

Insert A →

Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, this Frequency is concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 9.2.1.
2. FSAR, Chapter 6.
3. FSAR, Chapter 15.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 5) →

Section B 3.7.2 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

ACTIONS

B.1 (continued)

OPERABLE status within 60 days, DG 1B must be immediately declared inoperable.

SURVEILLANCE
REQUIREMENTS

SR 3.7.3.1

Verifying the correct alignment for manual, power operated, and automatic valves in the DG 1B SSW System flow path provides assurance that the proper flow paths will exist for DG 1B SSW System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position, and yet be considered in the correct position provided it can be automatically realigned to its accident position, within the required time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 3.7.3.2

This SR ensures that the DG 1B SSW System pump will automatically start to provide required cooling to the DG 1B when the DG 1B starts and the respective bus is energized.

Insert A →

Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based at the refueling cycle. Therefore, this Frequency is concluded to be acceptable from a reliability standpoint.

(continued)

BASES (continued)

- REFERENCES
1. FSAR, Section 9.2.1.
 2. FSAR, Chapter 6.
 3. FSAR, Chapter 15.
 4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 5) →

Section B 3.7.3 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.4.1 (continued)

operating conditions of this system are not severe, testing each subsystem once every 31 days provides an adequate check on this system. Since the MCREC System does not have heaters, each subsystem need only be operated for ≥ 15 minutes to demonstrate the function of the subsystem. Furthermore, the 31 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.

SR 3.7.4.2

This SR verifies that the required MCREC testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.4.3

This SR verifies that on an actual or simulated initiation signal, each MCREC subsystem starts and operates. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.4 overlaps this SR to provide complete testing of the safety function. ~~While this~~ *This* Surveillance can be performed with the reactor at power.

~~operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.~~

Insert A →

SR 3.7.4.4

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 potentially contaminated adjacent areas (the turbine building), is periodically tested to verify proper function of the MCREC System. During the pressurization mode of operation, the MCREC System is designed to slightly

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.4.4 (continued)

pressurize the control room ≥ 0.1 inches water gauge positive pressure with respect to the turbine building to prevent unfiltered inleakage. The MCREC System is designed to maintain this positive pressure at a flow rate of ≤ 2750 cfm through the control room in the pressurization mode. This SR ensures the total flow rate meets the design analysis value of $2500 \text{ cfm} \pm 10\%$ and ensures the outside air flow rate is ≤ 400 cfm. The frequency of 18 months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration systems SRs.

Insert B →

REFERENCES

1. FSAR, Section 6.4.
2. FSAR, Section 9.4.1.
3. FSAR, Chapter 6.
4. FSAR, Chapter 15.
5. FSAR, Section 6.4.1.2.2.
6. FSAR, Table 15.1-28.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
8. Technical Requirements Manual.

Insert C
(Reference 9) →

Section B 3.7.4 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 9.

Insert B:

The 24 month Frequency, on a STAGGERED TEST BASIS, is based on a review of the surveillance test history and Reference 9.

Insert C:

9. NRC Safety Evaluation Report for Amendment ____.

BASES

ACTIONS

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

action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, CORE ALTERATIONS and handling of irradiated fuel in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

SURVEILLANCE
REQUIREMENTS

SR 3.7.5.1

This SR verifies that the heat removal capability of the system is sufficient to remove the control room heat load assumed in the safety analysis. The SR consists of a combination of testing and calculation. The ~~18~~ ²⁴ month Frequency is appropriate since significant degradation of the Control Room AC System is not expected over this time period. *Insert A*

REFERENCES

1. FSAR, Sections 6.4 and 9.4.1.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
3. Technical Requirements Manual.

Insert B
(Reference 4) →

Section B 3.7.5 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 4.

Insert B:

4. NRC Safety Evaluation Report for Amendment ____.

BASES

ACTIONS
(continued)

B.1

If the Main Turbine Bypass System cannot be restored to OPERABLE status or the MCPR limits for an inoperable Main Turbine Bypass System are not applied, THERMAL POWER must be reduced to < 25% RTP. As discussed in the Applicability section, operation at < 25% RTP results in sufficient margin to the required limits, and the Main Turbine Bypass System is not required to protect fuel integrity during the turbine generator load rejection transient. 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 3.7.7.1

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 3.7.7.2

24 — 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 18 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 18 month Frequency, which is based on the refueling cycle, is acceptable from a reliability standpoint.

Insert A →

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.7.7.3

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 Technical Requirements Manual (Ref. 3). The 18 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.

24

Insert B →

Operating experience has shown the 18 month frequency, which is based on the refueling cycle, is acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 7.7.4.
2. FSAR, Section 15.1.7.
3. Technical Requirements Manual.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert C
(Reference 5) →

Section B 3.7.7 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert C:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.5 (continued)

every second test (due to the staggering of the tests), historically have a very low failure rate. If the swing DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

SR 3.8.1.6

Transfer of each 4.16 kV ESF bus power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit distribution network to power the shutdown loads. The 24 ~~18~~ month Frequency of the Surveillance is based on ~~engineering judgment taking into consideration the plant conditions required to perform the Surveillance, and is~~ intended to be consistent with expected fuel cycle lengths.

Insert A → ~~Operating experience has shown that these components usually pass the SR when performed on the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1 or 2 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1 or 2 and the Unit 1 test should not be performed with Unit 1 in MODE 1 or 2.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1.7

Each DG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the DG load response characteristics and capability to reject the largest single load without exceeding predetermined voltage and frequency and while maintaining a specified margin to the overspeed trip. The largest single load for each DG is a residual heat removal service water pump at rated flow (1225 bhp). This Surveillance may be accomplished by: a) tripping the DG output breaker with the DG carrying greater than or equal to its associated single largest post-accident load while paralleled to offsite power or while solely supplying the bus, or b) tripping its associated single largest post-accident load with the DG solely supplying the bus. Although Plant Hatch Unit 2 is not committed to IEEE-387-1984, (Ref. 11), this SR is consistent with the IEEE-387-1984 requirement that states the load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower. For all DGs, this represents 65.5 Hz, equivalent to 75% of the difference between nominal speed and the overspeed trip setpoint.

24 — The voltage and frequency specified are consistent with the nominal range for the DG. SR 3.8.1.7.a corresponds to the maximum frequency excursion, while SR 3.8.1.7.b is the voltage to which the DG must recover following load rejection. The 18 month Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 9).

Insert B

This SR is modified by two Notes. The reason for Note 1 is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, testing is performed with only the DG providing

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.7 (continued)

power to the associated 4160 V ESF bus. The DG is not synchronized with offsite power.

To minimize testing of the swing DG, Note 2 allows a single test (instead of two tests, one for each unit) to satisfy the requirements for both units. This is allowed since the main purpose of the Surveillance can be met by performing the test on either unit (no unit specific DG components are being tested). If the swing DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

SR 3.8.1.8

This Surveillance demonstrates the DG capability to reject a full load without overspeed tripping or exceeding the predetermined voltage limits. The DG full load rejection may occur because of a system fault or inadvertent breaker tripping. This Surveillance ensures proper engine generator load response under the simulated test conditions. This test simulates the loss of the total connected load that the DG experiences following a full load rejection and verifies that the DG does not trip upon loss of the load. These acceptance criteria provide DG damage protection. While the DG is not expected to experience this transient during an event, and continues to be available, this response ensures that the DG is not degraded for future application, including reconnection to the bus if the trip initiator can be corrected or isolated.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, testing must be performed using a power factor ≤ 0.88 . This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.

24 — The ~~18~~ month Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 9) and is intended to be consistent with expected fuel cycle lengths.

Insert C —

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.9 (continued)

design basis large break LOCA. The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability has been achieved.

The requirement to verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified. For the purpose of this testing, the DGs shall be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

The Frequency of ²⁴~~18~~ months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. 2

Insert D

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the specified

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.9 (continued)

Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

SR 3.8.1.10

This Surveillance demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time (12 seconds) from the design basis actuation signal (LOCA signal) and operates for ≥ 5 minutes. The 5 minute period provides sufficient time to demonstrate stability.

The requirement to verify the connection and power supply of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the loading logic for loading onto offsite power. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, ECCS injection valves are not desired to be stroked open, low pressure injection systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified. 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.

The Frequency of ²⁴~~18~~ months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with the expected fuel cycle lengths. ~~Operating experience has shown that these~~

Insert E —

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.10 (continued)

~~components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could potentially cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1 or 2 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1 or 2 and the Unit 1 test should not be performed with Unit 1 in MODE 1 or 2.

SR 3.8.1.11

This Surveillance demonstrates that DG non-critical protective functions (e.g., high jacket water temperature) are bypassed on a loss of voltage signal concurrent with an ECCS initiation signal and critical protective functions (engine overspeed, generator differential current, and low lubricating oil pressure) are available to trip the DG to avert substantial damage to the DG unit. The non-critical trips are bypassed during DBAs and provide an alarm on an abnormal engine condition. This alarm provides the operator with sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

²⁴
The ~~18~~ month Frequency ~~is based on engineering judgment~~ takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.11 (continued)

Insert F → with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the 18 month frequency. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.

The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DG from service. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the specified frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

SR 3.8.1.12

Regulatory Guide 1.108 (Ref. 9), ²⁴ paragraph 2.a.(3), requires demonstration once per ~~18~~ months that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours. The first 2 hours of this test are performed at ≥ 3000 kW and the last 22 hours of this test are performed at ≥ 2775 kW and ≤ 2825 kW, which is near the continuous rating of the DG. This is in accordance with commitments described in FSAR Section 8.3 (Ref. 2). The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, 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 ≤ 0.88 . 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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.12 (continued)

overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

The ²⁴~~18~~ month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(3); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths. ²

Insert G

This Surveillance has been modified by four Notes. Note 1 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. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that would challenge continued steady state operation and, as a result, plant safety systems. However, it is acceptable to perform this SR in MODES 1 and 2 provided the other two DGs are OPERABLE, since a perturbation can only affect one divisional DG. If during the performance of this Surveillance, one of the other DGs becomes inoperable, this Surveillance is to be suspended. The surveillance may not be performed in MODES 1 and 2 during inclement weather and unstable grid conditions. Credit may be taken for unplanned events that satisfy this SR. Note 3 is provided in recognition that if the offsite electrical power distribution system is lightly loaded (i.e., system voltage is high), it may not be possible to raise voltage without creating an overvoltage condition on the ESF bus. Therefore, to ensure the bus voltage, supplied ESF loads, and DG are not placed in an unsafe condition during this test, the power factor limit does not have to be met if grid voltage or ESF bus loading does not permit the power factor limit to be met when the DG is tied to the grid. When this occurs, the power factor should be maintained as close to the limit as practicable. To minimize testing of the swing DG, Note 4 allows a single test (instead of two tests, one for each unit) to satisfy the requirements for both units. This is allowed since the main purpose of the Surveillance can be met by performing the test on either unit (no unit specific DG components are being tested). If the swing DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1.13

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within 12 seconds. The 12 second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. The ~~18~~ month Frequency is consistent with the recommendations of ~~24~~ Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(5). ~~2~~

Insert H

This SR is modified by three Notes. Note 1 ensures that the test is performed with the diesel sufficiently hot. The requirement that the diesel has operated for at least 2 hours at near full load conditions prior to performance of this Surveillance is based on manufacturer recommendations for achieving hot conditions. Momentary transients due to changing bus loads do not invalidate this test. Note 2 allows all DG starts to be preceded by an engine prelube period to minimize wear and tear on the diesel during testing. To minimize testing of the swing DG, Note 3 allows a single test (instead of two tests, one for each unit) to satisfy the requirements for both units. This is allowed since the main purpose of the Surveillance can be met by performing the test on either unit (no unit specific DG components are being tested). If the swing DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

SR 3.8.1.14

This Surveillance is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(6) and ensures that the manual synchronization and automatic load transfer from the DG to the offsite source can be made and that the DG can be returned to ready-to-load status when offsite power is restored. It also ensures that the auto-start logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in ready-to-load status when the DG is at rated speed and voltage, the output breaker is open and can receive an auto-close signal on bus undervoltage, and the load sequence timers are reset.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.14 (continued)

The Frequency of ²⁴~~18~~ months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(6), and takes into consideration plant conditions required to perform the Surveillance.

Insert I

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

SR 3.8.1.15

Demonstration of the test mode override ensures that the DG availability under accident conditions is not compromised as the result of testing. Interlocks to the LOCA sensing circuits cause the DG to automatically reset to ready-to-load operation if an ECCS initiation signal is received during operation in the test mode. Ready-to-load operation is defined as the DG running at rated speed and voltage with the DG output breaker open. Although Plant Hatch Unit 2 is not committed to this standard, this SR is consistent with the provisions for automatic switchover required by IEEE-308 (Ref. 12), paragraph 6.2.6(2).

The intent in the requirements associated with SR 3.8.1.15.b is to show that the emergency loading is not affected by the DG operation in test mode. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the emergency loads to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.15 (continued)

²⁴
The ~~18~~ month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(8); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths. ↑

Insert J —

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

SR 3.8.1.16

Under accident conditions, loads are sequentially connected to the bus by the automatic load sequence timing devices. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the DGs due to high motor starting currents. The 10% load sequence time interval tolerance ensures 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 buses.

²⁴
The Frequency of ~~18~~ months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(2); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths. ↑

Insert K —

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.16 (continued)

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.

This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the specified Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

SR 3.8.1.17

In the event of a DBA coincident with a loss of offsite power, the DGs are required to supply the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded.

This Surveillance demonstrates DG operation, as discussed in the Bases for SR 3.8.1.9, during a loss of offsite power actuation test signal in conjunction with an ECCS initiation signal. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified. 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.

The Frequency of ²⁴~~18~~ months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length.

Insert L → ~~of 18 months.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.19 (continued)

circuits, and swing DG. This Surveillance is provided to direct that the appropriate Surveillances for the required Unit 1 DG and offsite circuit are governed by the Unit 1 Technical Specifications. Performance of the applicable Unit 1 Surveillances will satisfy both any Unit 1 requirements, as well as satisfying this Unit 2 Surveillance requirement. Several exceptions are noted to the Unit 1 SRs: SR 3.8.1.6 is excepted since only one Unit 1 circuit is required by the Unit 2 Specification (therefore, there is not necessarily a second circuit to transfer to); SRs 3.8.1.10, 15, and 17 are excepted since they relate to the DG response to a Unit 1 ECCS initiation signal, which is not a necessary function for support of the Unit 2 requirement for an OPERABLE Unit 1 DG.

The Frequency required by the applicable Unit 1 SR also governs performance of that SR for both Units.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. FSAR, Sections 8.2 and 8.3.
3. Regulatory Guide 1.9, March 1971.
4. FSAR, Chapter 6.
5. FSAR, Chapter 15.
6. Regulatory Guide 1.93, December 1974.
7. Generic Letter 84-15.
8. 10 CFR 50, Appendix A, GDC 18.
9. Regulatory Guide 1.108, August 1977.
10. Regulatory Guide 1.137, October 1979.
11. IEEE Standard 387-1984.
12. IEEE Standard 308-1980.
13. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert M
(Reference 14) →

Section B 3.8.1 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert B:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert E:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert F:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert G:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Section B 3.8.1 Inserts (Continued)

Insert H:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert I:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert J:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert K:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert L:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert M:

14. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.3.7 (continued)

system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for manual fuel transfer are OPERABLE.

Since the fuel oil transfer pumps are being tested on a 31 day Frequency in accordance with SR 3.8.3.5, the ~~18~~²⁴ month Frequency has been determined to be acceptable, based on engineering judgement and operating experience

Insert A →

REFERENCES

1. FSAR, Section 9.5.4.
2. FSAR, Chapter 6.
3. FSAR, Chapter 15.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert B
(Reference 5) →

Section B 3.8.3 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 5.

Insert B:

5. NRC Safety Evaluation Report for Amendment ____.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.2 (continued)

The resistance values for each battery connection are located in the Technical Requirements Manual (Reference 9).

The Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is 92 days. This Frequency is considered acceptable based on operating experience related to detecting corrosion trends.

SR 3.8.4.3

Visual inspection of the battery cells, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The ²⁴18 month Frequency of the Surveillance ^{takes} ~~is based on engineering judgment, taking~~ into consideration the desired plant conditions to perform the Surveillance. ~~Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

Insert A →

SR 3.8.4.4 and SR 3.8.4.5

Visual inspection and resistance measurements of inter-cell, inter-rack, inter-tier, and terminal connections provides an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anti-corrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection.

The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure of this SR, provided visible corrosion is removed during performance of this Surveillance.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.4 and SR 3.8.4.5 (continued)

The connection resistance limits are established to maintain connection resistance as low as reasonably possible to minimize the overall voltage drop across the battery and the possibility of battery damage due to heating of connections. The resistance values for each battery connection are located in the Technical Requirements Manual (Reference 9).

²⁴
The ~~18~~ month Frequency of the Surveillances ~~is based on~~ ^{takes} ~~engineering judgment, taking~~ into consideration the desired plant conditions to perform the Surveillance. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

Insert B →

SR 3.8.4.6

Battery charger capability requirements are based on the design capacity of the chargers (Ref. 4). According to Regulatory Guide 1.32 (Ref. 10), each battery charger supply is required to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensures that these requirements can be satisfied.

²⁴ The Frequency is acceptable, given the unit conditions required to perform the test and the other administrative controls existing to ensure adequate charger performance during these ~~18~~ month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.

Insert C →

SR 3.8.4.7

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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.7 (continued)

The Frequency of ²⁴~~18~~ months is consistent with the recommendations of Regulatory Guide 1.32 (Ref. 10) and Regulatory Guide 1.129 (Ref. 11), which state that the battery service test should be performed during refueling operations or at some other outage, ~~with intervals between tests not to exceed 18 months.~~

Insert D →

This SR is modified by two Notes. Note 1 allows the performance of a modified performance discharge test in lieu of a service test.

The modified performance discharge test is a simulated duty cycle consisting of just two rates: the 1 minute rate published for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance test, both of which envelope the duty cycle of the service test. Since the ampere-hours removed by a rated 1 minute discharge represent a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test should remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

A modified performance discharge test is a test of the battery capacity and its ability to provide a high rate, short duration load (usually the highest rate of the duty cycle). This will often confirm the battery's ability to meet the critical period of the load duty cycle, in addition to determining its percentage of rated capacity. Initial conditions for the modified performance discharge test should be identical to those specified for a service discharge test.

The reason for Note 2 is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned

(continued)

BASES

REFERENCES
(continued)

5. FSAR, Chapter 6.
6. FSAR, Chapter 15.
7. Regulatory Guide 1.93, December 1974.
8. IEEE Standard 450-1987.
9. Technical Requirements Manual.
10. Regulatory Guide 1.32, February 1977.
11. Regulatory Guide 1.129, December 1974.
12. IEEE Standard 485-1983.
13. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Insert E
(Reference 14) →

Section B 3.8.4 Inserts

Insert A:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert B:

The 24 month Frequency of SRs 3.8.4.4 and 3.8.4.5 is based on a review of the surveillance test history and Reference 14.

Insert C:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert D:

The 24 month Frequency is based on a review of the surveillance test history and Reference 14.

Insert E:

14. NRC Safety Evaluation Report for Amendment ____.