TS 3.4.5 RCS Leakage Detection Instrumentation

As stated in the TS Bases, GDC 30 of 10 CFR 50, Appendix A, requires means for detecting, and to the extent practical, identifying the location of the source of RCS leakage. Limits on leakage from the RCPB are required so that appropriate action can be taken before the integrity of the RCPB is impaired. Leakage detection systems for the RCS are provided to alert the operators when leakage rates above normal background levels are detected and also to supply quantitative measurement of leakage rates. Systems for separating the leakage of an identified source from an unidentified source are necessary to provide prompt and quantitative information to the operators to permit them to take immediate corrective action. Leakage from the RCPB inside the drywell is detected by at least one of two or three independently monitored variables, such as sump level changes and drywell gaseous and particulate radioactivity levels.

The primary means of quantifying leakage in the drywell is the drywell floor drain sump monitoring system. The drywell floor drain sump monitoring system monitors the leakage collected in the floor drain sump. This unidentified leakage consists of leakage from CRDs, valve flanges or packings, floor drains, closed cooling water, and drywell air cooling unit condensate drains, and any leakage not collected in the drywell equipment drain sump. The floor drain sump level indicators have switches that start and stop the sump pumps when required. (The level indicators also provide a floor drain sump high-level alarm in the MCR.) One timer starts when a sump pump starts on high level, and another timer starts each time the sump is pumped down to the low-level setpoint. If the pump does not stop on low level before the first timer ends or the sump fills to the high-level setpoint before the second timer ends, an alarm sounds in the MCR, indicating a leakage rate into the sump in excess of a preset limit.

The primary containment air monitoring systems (particulate, noble gas, and iodine) continuously monitor the primary containment atmosphere for airborne particulate and gaseous radioactivity. A sudden increase of radioactivity, which may be attributed to RCPB steam or reactor water leakage, is annunciated in the MCR. The primary containment atmosphere particulate and gaseous radioactivity monitoring systems are not capable of quantifying leakage rates, but are sensitive enough to indicate increased leakage rates. Larger changes in leakage rates are detected in shorter times.

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.4.5.3 Perform a CHANNEL CALIBRATION of required leakage detection instrumentation.

a. Drywell floor drain sump monitoring system

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The sump monitoring system consists of both flow and level monitoring loops.

The flow monitoring loops consist of Rosemount flow transmitters and GE square root converters, flow integrators, and recorders. The level monitoring loops consist of GEMS level sensors and indicating trip units, and Eagle time delay relays.

Sump monitoring devices are operational at all times, since these devices are used to evaluate each day's leakage and are compared with other indications for primary leakage. These devices do not require a drift evaluation, since normal operation is confirmed at the end of the day by totaling the leakage and confirming that no abnormal conditions exist. Instrument drift is considered a long-term affect, and the drift that occurs during the short duration between readings on these instruments is insignificant and will not affect the conclusions drawn relative to RCS leakage.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history for the associated surveillance tests [57SV-G11-005-1(2)S and 57SV-G11-003-1(2)S] demonstrates that failures affecting this safety function are rarely observed during this SR activity. For both units, over the time period monitored (1990 through 1999), only two instances of Category D safety function failures occurred. That is, during performance of 57SV-G11-005-2S, a time delay relay failed in one test, and a time delay relay and a meter relay failed in another test.

Although the failure mechanisms were not specifically determined these failures do not appear to be indicative of a time-based failure mechanism. The limited number of failures is not indicative of a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.4.5.3 Perform a CHANNEL CALIBRATION of required leakage detection instrumentation.

b. One channel of either primary containment atmospheric particulate or atmospheric gaseous monitoring system.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This Function is performed via the use of GE atmospheric particulate and atmospheric gaseous radiation monitors. Since these instruments monitor only for a sudden increase of radioactivity, which may be attributed to RCPB steam or reactor water leakage, long-term drift is of no consequence in this application. The containment atmosphere particulate and gaseous radioactivity monitoring systems are not capable of quantifying leakage rates, but are sensitive enough to indicate increased leakage rates. Because of this fact, and the fact that the more accurate measurement of leakage comes from the drywell floor drain sump monitoring system, drift analysis was not required for this application.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.5.1 ECCS - Operating

As stated in the TS Bases, the ECCS is designed, in conjunction with the primary and secondary containments, to limit the release of radioactive materials to the environment following a LOCA. The ECCS uses two independent methods (flooding and spraying) to cool the core during a LOCA. The ECCS network consists of:

- HPCI System.
- CS System.
- LPCI System.
- ADS.

The suppression pool provides the required source of water for the ECCS. Although no credit is taken for the CST in the FSAR safety analysis, the CST is capable of providing a source of water for the HPCI and CS Systems.

On receipt of an initiation signal, ECCS pumps automatically start. Simultaneously, the system aligns and the pumps inject water, taken either from the CST or suppression pool, into the RCS, as RCS pressure is overcome by the discharge pressure of the ECCS pumps. Although the system is initiated, ADS action is delayed, allowing the operator to interrupt the timed sequence if the system is not needed. The HPCI pump discharge pressure almost immediately exceeds that of the RCS, and the pump injects coolant into the RPV to cool the core. If the break is small, the HPCI System will maintain coolant inventory, as well as RPV level, while the RCS is still pressurized. If HPCI fails, it is backed up by the ADS, in combination with LPCI and CS. In this event, the ADS timed sequence can be allowed to time out and open the selected S/RVs, depressurizing the RCS. This allows LPCI and CS to overcome RCS pressure and inject coolant into the RPV. If the break is large, RCS pressure initially drops rapidly, and LPCI and CS cool the core.

The ADS consists of 7 of the 11 S/RVs. It is designed to depressurize the RCS during a small-break LOCA if HPCI fails or is unable to maintain required water level in the RPV. ADS operation reduces the RPV pressure to within the operating pressure range of the low-pressure ECCS subsystems (CS and LPCI), so that these subsystems can provide coolant inventory makeup. Each S/RV used for automatic depressurization is equipped with one air accumulator and associated inlet check valves. The accumulator provides the pneumatic power to actuate the valves.

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.5.1.9 Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm, against a system head corresponding to reactor system pressure. [NOTE: Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.]

The surveillance test interval for this SR as applied to this Function is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This test ensures the capability of the HPCI pump to overcome RPV pressure and inject coolant into the core as designed, for analyzed conditions. No plant instrumentation is used to satisfy this SR, so instrument drift was not analyzed for this Function. A review of the surveillance history shows that the pumps regularly pass the tests involved. The extension of this SR is based upon a review of the surveillance history.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history for the associated surveillance tests (12 performances involving 34SV-E41-005-1(2)S) demonstrates that failures are rarely observed during this SR activity. For both units, over the time period monitored (1991 through 1999), only one test with a Category D safety function failure occurred. That failure was caused by the failure of the EGM speed controller.

This unique failure and did not indicate a pattern of repetitive failures nor was this failure the result of a time-based failure mechanism. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.5.1.10 Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal. [NOTE: Vessel injection/spray may be excluded.]

The surveillance test interval for this SR as applied to this Function is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The ECCS functional test ensures a system initiation signal (actual or simulated) to the automatic initiation logic will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup and actuation of automatic valves to their required positions.

The increased surveillance interval is justified for the following reasons: The ECCS network has built-in redundancy so that no single failure prevents the starting of the ECCS. Extensions of the calibration cycles for the instrumentation and LOGIC SYSTEM FUNCTIONAL TEST intervals have been previously justified. The pumps and valves associated with the ECCS injection subsystems are tested by the IST program or have justifications for extended testing intervals herein, providing a high level of reliability and safety. This testing ensures the major components of the systems are capable of performing their design function. Since most of the components and circuits are tested on a more frequent basis, this testing will indicate any degradation to the ECCS that will result in an inability to start, based upon a demand signal.

Based upon the above discussion, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history for the associated surveillance tests demonstrates that failures affecting this safety function are rarely observed during this SR activity. For both units, over the time period monitored, there were only two Category D safety function failures as detailed below:

1. During performance of surveillance test 42SV-E11-001-1S, a relay failed. The relay was replaced and the test was completed satisfactorily. Twelve performances of 42SV-E11-001-1(2)S for both units over the span of 1990 to 1999 were reviewed, and the results show this is a unique failure.

2. During performance of surveillance test 42SV-E11-004-2S, a relay failed to actuate. The problem was traced to the valve 2E11-F009 limit switch that was found to be out of adjustment. Thirteen performances of 42SV-E11-004-1(2)S for both units over the span of 1990 to 1999 were reviewed, and the results show this is a unique failure.

These failures are not indicative of a time-based failure mechanism. These unique failures do not represent a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.5.1.11 Verify the ADS actuates on an actual or simulated automatic initiation signal. [NOTE: Valve actuation may be excluded.]

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. 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 SR to provide complete testing of the assumed safety function. Seven of the 11 S/RVs are allocated to ADS, which can automatically operate the valves in the depressurization mode to reduce RPV pressure and, thus, allow the low-pressure ECCS subsystems to cool the reactor. The Note that excludes valve actuation prevents an RPV pressure blowdown.

Operating experience shows that these components usually pass the SR when performed at the 18-month interval, which is based upon the refueling cycle. The ADS has built-in redundancy so that no single failure prevents the opening of the required number of ADS valves.

Based upon the system redundancy and reliability, and the additional testing to ensure proper operation of the remainder of the ECCS subsystems, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.5.1.12 Verify Each ADS valve relief mode actuator strokes when manually actuated.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR ensures the valve

relief mode actuator strokes properly when manually actuated. The manual operation of each ADS valve actuator is verified to demonstrate that the ADS Function operates, as designed, when initiated manually. Other testing verifies the operation of the circuit, solenoid valve, and functional logic components. Valve OPERABILITY and the setpoint for overpressure protection (safety portion) are verified per ASME requirements prior to valve installation. This verification proves that the valve was actually functioning when installed. The valves are normally tested soon after startup; any failure of actual valve function would be noted and corrected prior to extended plant operation.

No time-based failure modes that will prevent the valve from opening during operation were identified. Also no time-based blockage mechanisms identified were identified. Operating experience shows that these components usually pass the SR when performed at the 18-month interval, which is based upon the refueling cycle.

Based upon the above discussion, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.5.1.13 Verify each ECCS injection/spray subsystem ECCS RESPONSE TIME is within limits. (Unit 2 Only) [NOTE: ECCS injection/spray initiation instrumentation RESPONSE TIME may be assumed from established limits.]

The surveillance test interval for this SR as applied to this ECCS subsystem is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR ensures the system functions within the response time assumed in the analyses of the applicable analyzed event. Response time testing verifies that the subsystem will receive an initiating signal, and that the pumps and valves will operate in the time required to inject water for the design event. The response time is primarily dependent on the time required for the pumps to start and achieve rated flow and pressure conditions and the time for the valves associated with injection to reposition.

The increased surveillance interval is justified for the following reasons: The ECCS network has built-in redundancy so that no single failure prevents the starting of the ECCS. Extensions of the calibration cycle for the associated instrumentation and LOGIC SYSTEM FUNCTIONAL TEST interval were previously justified. The pumps and valves associated with the ECCS subsystems are tested by the IST program or have justifications for interval extension herein. This testing ensures the major components of the systems are capable of performing their design function within the required time. Operating experience shows that these components usually pass the SR when performed at the 18-month interval, which is based upon the refueling cycle.

The major considerations for system response time testing include time of power supply availability, time for pump actuation signal, time for the pump to start, time for the pump to develop adequate pressure and flow and the time associated with the automatic valve operation for injection. Power availability and signal development time are either verified by other TS requirements or are not required. While the specific time for pump start is not evaluated by the

IST pump operation, pump differential pressure and flow rate are verified. Additionally although the IST valve testing does not verify valve stroke time on a more frequent basis, the ability of the valve to stroke is verified and any substantially excessive stroke time would be noticed at the time of operation. These tests will detect major degradation in system components that could impact system response time.

Based upon the above discussion, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.5.2 ECCS-SHUTDOWN

A description of the ECCS subsystems is included in the description for TS 3.5.1, "ECCS - Operating."

The following SR was evaluated relative to extending the testing intervals. This SR ensures the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.5.2.6 Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal. [NOTE: Vessel injection/spray may be excluded.]

The surveillance test interval for this SR as applied to this Function is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The ECCS functional test ensures a system initiation signal (actual or simulated) to the automatic initiation logic will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup and actuation of automatic valves to their required positions.

The increased surveillance interval is overcome by the following conditions. The ECCS network has built-in redundancy so that no single failure prevents the starting of the ECCS. Extensions of the calibration cycles for the instrumentation and LOGIC SYSTEM FUNCTIONAL TEST frequencies have been previously justified. The pumps and valves associated with the ECCS injection subsystems are tested by the IST program or have justifications for extended frequencies herein, providing a high level of reliability and safety. This testing ensures the major components of the systems are capable of performing their design function. Since most of the components and circuits are tested on a more frequent basis, this testing will indicate any degradation to the HPCI System that will result in an inability to start, based upon a demand signal. Operating experience shows that these components usually pass the SR when performed at the 18-month interval, which is based upon the refueling cycle.

Based upon the above discussion, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history for the associated surveillance tests demonstrates that failures affecting this safety function are rarely observed during this SR activity. For both units, over the time period monitored, only two Category D safety function failures occurred as detailed below:

1. During performance of surveillance test 42SV-E11-001-1S, a relay failed. The relay was replaced and the test was completed satisfactorily. Twelve performances of 42SV-E11-001-1(2)S for both units, over the span of 1990 to 1999, were reviewed, and the results show this is a unique failure.

2. During performance of surveillance test 42SV-E11-004-2S, a relay failed to actuate. The problem was traced to the valve 2E11-F009 limit switch that was found to be out of adjustment. Thirteen performances of 42SV-E11-004-1(2)S for both units, over the span of 1990 to 1999, were reviewed, and the results show this is a unique failure.

These failures are not indicative of a time-based failure mechanism. These two unique failures do not represent a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.5.3 RCIC SYSTEM

As stated in the TS Bases, the RCIC System is not part of the ECCS; however, the RCIC System is included in the ECCS section because of the similarity in functions. The RCIC System is designed to operate either automatically or manually following RPV isolation accompanied by a loss of coolant flow from the feedwater system to provide adequate core cooling and control of the RPV water level. Under these conditions, the HPCI and RCIC Systems perform similar functions.

The RCIC System consists of a steam-driven turbine pump unit, piping, and valves that provide steam to the turbine, as well as piping and valves that transfer water from the suction source to the core via the Feedwater System line where the coolant is distributed within the RPV through the feedwater sparger. Suction piping is provided from the CST and the suppression pool. Pump suction is normally aligned to the CST to minimize injection of suppression pool water into the RPV. However, if the CST water supply is low, or the suppression pool level is high, an automatic transfer to the suppression pool water source ensures a water supply for continuous operation of the RCIC System. The steam supply to the turbine is piped from an MSL upstream of the associated inboard MSIV.

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.5.3.4 Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure. [NOTE: Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.]

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR ensures the RCIC system is capable of performing the design function at low RPV pressure. In addition, SR 3.5.3.3 requires that RCIC be tested every 3 months to ensure required flow at normal operating pressure can be achieved. Although conducted at normal operating pressure, this test will detect significant failures of the RCIC turbine or pump that could lead to the failure of the RCIC System to perform its safety function at low reactor pressures.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.5.3.5 Verify the RCIC System actuates on an actual or simulated automatic initiation signal. [NOTE: Vessel injection may be excluded.]

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The RCIC System functional test ensures a system initiation signal (actual or simulated) to the automatic initiation logic of RCIC will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup and actuation of automatic valves to their required positions. The increased interval for this SR is acceptable, because RCIC is not a system that is assumed in the safety analysis; the functions performed by RCIC can also be performed by HPCI. The LOGIC SYSTEM FUNCTIONAL TEST performed in SR 3.3.5.2.5 overlaps this SR to provide complete testing of the assumed safety function. The RCIC pumps and valves are tested on a more frequent basis as a part of the IST program. This more frequent testing ensures major portions of the RCIC system is operating within normal boundaries. Operating experience shows that these components usually pass the SR when performed at the 18-month interval, which is based upon the refueling cycle. Furthermore, as stated in Ref. 1:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Based upon the above discussion, the effect, if any, of this proposed change or system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.6.1.1 Primary Containment

As stated in the TS Bases, the function of the primary containment is to isolate and contain fission products released from the Reactor Primary System following a DBA and to confine the postulated release of radioactive material. The primary containment consists of a steel-lined, reinforced-concrete vessel that surrounds the Reactor Primary System and provides an essentially leak tight barrier against an uncontrolled release of radioactive material to the environment.

Maintaining the pressure suppression function of primary containment requires limiting the leakage from the drywell to the suppression chamber. Thus, if an event pressurizes the drywell, the steam will be directed through the downcomers into the suppression pool.

The following SR was evaluated relative to extending the testing intervals. This SR ensures the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.6.1.1.2 Verify drywell to suppression chamber differential pressure does not decrease at a rate > 0.25 inch water gauge per minute tested over a 10 minute period at an initial differential pressure of 1 psid.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The Note to the current SR states that, if after two consecutive tests fail, the interval changes to every 9 months until two consecutive tests pass. This increased test interval is not affected by this change. This SR measures drywell-to-suppression chamber differential pressure during a 10-minute period to ensure the leakage paths that bypass the suppression pool are within allowable limits. 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. It is prudent that this SR be performed during a unit outage.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.6.1.3 Primary Containment Isolation Valves (PCIVs)

As stated in the TS Bases, the function of the Primary Containment Isolation Valves (PCIVs), in combination with other accident mitigation systems, is to limit fission product release during and following postulated DBAs to within limits. Primary containment isolation ensures the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA.

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.6.1.3.7 Verify each automatic PCIV, excluding EFCVs, actuates to the isolation position on an actual or simulated isolation signal.

The surveillance test interval for this SR as applied to this PCIV subsystem is being increased from 18 months to 24 months, for a maximum interval of 30 months including the 25% grace period. This SR ensures 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 interval was based upon the operating cycle, because it is prudent that this SR be performed only during a unit outage since isolation of penetrations eliminates cooling water flow and disrupts the normal operation of many critical components. Operating experience shows that these components usually pass this SR when performed at the 18-month interval.

During the operating cycle, PCIVs are either exercised (closed or open) or partially stroked (open or close), or justifications exist to document less frequent testing in accordance with the IST program. The exercise of these PCIVs (during IST cycling) tests the movement of the PCIVs and detect failures with valve movement. The PCIVs, including the actuating logic, are designed to be single failure proof and, therefore, are highly reliable. Extension of the LOGIC SYSTEM FUNCTIONAL TEST was previously justified.

Based upon the testing of the valves, the reliability of the PCIVs, the redundant nature of containment isolation, and the operating experience of the testing, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history for this SR demonstrates that safety function failures are rarely observed during this SR activity, especially considering the large number of tests performed to satisfy this SR. Over the time period monitored (1990 through 1999), there were 337 performances of the surveillance tests that satisfy this SR. Over that span, only three Category D safety function failures occurred. These failures were:

1. During a performance of 34SV-E41-001-1S, valve 1E41-F003 would not close. Disassembly of the valve revealed the valve stem was damaged. The valve was completely rebuilt.

2. During a performance of 42SV-E11-001-1S, a relay was found failed. The relay was subsequently replaced.

3. During performance of 34SV-E11-002-1S, valve 1E11-F015B would not operate. The motor shaft was broken. The motor was replaced.

These failures are not indicative of time-based failure mechanisms and do not represent a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.6.1.3.8 Verify each reactor instrumentation line EFCV actuates to restrict flow to within limits.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. 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 ensures the instrumentation line EFCVs will perform as designed. The interval is based upon the need to perform this SR under outage conditions to reduce the potential for an unplanned transient if the SR were performed with the reactor at power. Operating experience shows that these components usually pass this SR when performed at the 18-month interval. The operational mechanism for an EFCV is not subject to drift or other time-based changes affected by the change to a 24-month cycle.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history revealed that safety function failures are rarely observed during this SR activity, especially considering the large number of excess flow check valves tested every cycle. For the associated surveillance tests (57SV-SUV-004-1(2)S and 57SV-SUV-005-1S), over the time period monitored (1990 through 1999), only four Category D safety function failures occurred. These failures were:

1. During a performance of 57SV-SUV-004-2S, valve 2E41-F024C did not close. The valve was removed from the line, backfilled, and was retested satisfactorily.

2. During a performance of 57SV-SUV-004-2S, valve 2E51-F044B did not close. The valve poppet and spring were replaced and the valve was retested satisfactorily.

3. During a performance of 57SV-SUV-004-2S, valve 2E51-F044D did not close. Debris was found inside the valve. The valve internals were cleaned, and the valve was retested satisfactorily.

4. During a performance of 57SV-SUV-005-1S, valve 1B21-F047A did not close. The valve was backflushed, and the valve was retested satisfactorily.

Four failures out of the large number of valves tested represent a very low failure rate. The failures that occurred are not indicative of a time-based failure mechanism. Considering the large number of valves tested every cycle, these failures do not represent a pattern of repetitive

failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.6.1.3.9 Remove and test the explosive squib from each shear isolation valve of the TIP system.

The surveillance test interval for this SR is being increased from 18 months on a STAGGERED TEST BASIS to 24 months on a STAGGERED TEST BASIS, for a maximum interval of 30 months, including the 25% grace period. 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 ensure 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 was certified by having one squib from the batch successfully fired. Additionally, the shear valves are considered to only be a manually actuated backup to the automatic isolation valves for the TIPs. The interval of 24 months on a STAGGERED TEST BASIS is considered adequate, given the administrative controls on replacement charges, the fact that the shear valves act only as manually actuated backups to the automatic isolation valves, and the more frequent checks of circuit continuity per SR 3.6.1.3.4 (every 31 days).

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.6.1.3.11 (SR 3.6.1.3.12 for Unit 2) Replace the valve seat of each 18 inch purge valve having a resilient material seat.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The valve seats of each 18-inch purge valve (supply and exhaust) having resilient material seats must be replaced every outage. This will allow the opportunity for repair before gross leakage failure develops. Operational experience shows that gross leakage normally does not occur when the valve seats are replaced on an 18-month interval, since the tests are normally passed.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.6.1.3.12 (SR 3.6.1.3.13 for Unit 2) Cycle each 18 inch excess flow isolation damper to the fully closed and fully open position.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The SR ensures the excess flow isolation dampers can close following an isolation signal. Operating experience shows that these components usually pass this SR when performed at an 18-month interval. The operational mechanism for these valves is not subject to drift or other time-based changes affected by the change to a 24-month cycle.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.6.1.6 Low-Low Set (LLS) Valves

As stated in the TS Bases, the S/RVs can actuate in the safety mode, the ADS mode, or the LLS Mode. In the LLS Mode (or power actuated mode of operation), a pneumatic diaphragm and stem assembly overcome the spring force and opens the pilot valve. As in the safety mode, opening the pilot valve allows a differential pressure to develop across the main valve piston and opens the main valve. The main valve can stay open with valve inlet steam pressure as low as 50 psig. Below this pressure, steam pressure may not be sufficient to hold the main valve open against the spring force of the pilot valves. The pneumatic operator is arranged so that its malfunction will not prevent the valve disk from lifting if steam inlet pressure exceeds the safety mode pressure setpoints.

Four S/RVs are equipped to provide the LLS function. The LLS logic causes the LLS valves to be opened at a lower pressure than the relief or safety mode pressure setpoints and stay open longer so that reopening more than one S/RV is prevented on subsequent actuations. Therefore, the LLS function prevents excessive short-duration S/RV cycles with valve actuation at the relief setpoint.

The LLS relief mode functions to ensure the containment design basis is met. Multiple simultaneous openings of S/RVs (following the initial opening), and the corresponding higher loads, are avoided. The safety analysis demonstrates that the LLS functions to avoid the induced thrust loads on the S/RV discharge line resulting from "subsequent actuations" of the S/RV during DBAs. Furthermore, the LLS function justifies the primary containment analysis assumption that simultaneous S/RV openings occur only on the initial actuation for DBAs. Even though four S/RVs are designated for the LLS function, all four LLS S/RVs do not operate in any DBA analysis. Thus, operation with three of four LLS S/RVs OPERABLE is acceptable.

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.6.1.6.1 Verify each LLS valve relief mode actuator strokes when manually actuated.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR only verifies that the actuator will stroke when manually actuated. 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 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. Extension of this SR is acceptable, because other testing verifies the operation of the circuit and functional logic components. No time-based failure modes that will prevent the valve from opening during operation were identified. Also no time-based blockage mechanisms were identified.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.6.1.6.2 Verify the LLS System actuates on an actual or simulated automatic initiation signal. [NOTE: Valve actuation may be excluded.]

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The Note that excludes valve actuation prevents an RPV pressure blowdown. Extension of this SR is acceptable, because other testing verifies the operation of the circuit and relief mode actuator operation. Additionally, the increased surveillance interval is mitigated by the following conditions. The LLS has built-in redundancy, four valves designated and only three required to perform the function, so that no single failure prevents the opening of the required number of LLS valves. The interval is based upon the need to perform this SR under the conditions that apply during a plant outage and the potential for an unplanned transient if the SR is performed with the reactor at power. Operating experience shows these components usually pass the SR when performed at the 18-month interval.

Based upon the additional testing, system reliability and redundancy, and operating experience, the impact, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.6.1.7 Reactor Building-to-Suppression Chamber Vacuum Breakers

As stated in the TS Bases, the function of the reactor building-to-suppression chamber vacuum breakers is to relieve vacuum when primary containment depressurizes below reactor building pressure. If the drywell depressurizes below reactor building pressure, the negative differential pressure is mitigated by flow through the reactor building-to-suppression chamber vacuum breakers and through the suppression chamber-to-drywell vacuum breakers. The design of the external (reactor building-to-suppression chamber) vacuum relief provisions consists of two vacuum breakers (a mechanical vacuum breaker and an air-operated butterfly valve), located in series in each of two lines from the reactor building to the suppression chamber airspace. The butterfly valve is actuated by differential pressure. The mechanical vacuum breaker is self-actuating and can be remotely operated for testing purposes. The two vacuum breakers in series must be closed to maintain a leak tight primary containment boundary.

A negative differential pressure across the drywell wall is caused by rapid depressurization of the drywell. Events that cause this rapid depressurization are cooling cycles, inadvertent primary containment spray actuation, and steam condensation in the event of a primary system rupture. Reactor building-to-suppression chamber vacuum breakers prevent an excessive negative differential pressure across the primary containment boundary. Cooling cycles result in minor pressure transients in the drywell that occur slowly and are normally controlled by heating and ventilation equipment. Inadvertent spray actuation results in a more significant pressure transient and becomes important in sizing the external (reactor building-to-suppression chamber) vacuum breakers.

The following SR was evaluated relative to extending the testing intervals. This SR ensures the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.6.1.7.3 Verify the opening setpoint of each vacuum breaker is ≤ 0.5 psid.
The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. Demonstration of vacuum breaker opening setpoint is necessary to ensure the safety analysis assumption regarding vacuum breaker full open differential pressure of ≤ 0.5 psid is valid. The interval is based upon the need to perform this SR under the conditions that apply during a plant outage and the potential for an unplanned transient if the SR were performed with the reactor at power. Operating experience shows these components usually pass the SR when performed at the 18-month interval. Extension of this SR interval is further justified because of the more frequent functional testing of each vacuum breaker in the IST program per SR 3.6.1.7.2. Additionally, the system is designed to be single failure proof.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.6.1.8 Suppression Chamber-to-Drywell Vacuum Breakers

As stated in the TS Bases, the function of the suppression chamber-to-drywell vacuum breakers is to relieve vacuum in the drywell. There are 12 internal vacuum breakers located on the vent header of the vent system between the drywell and the suppression chamber, which allow air and steam flow from the suppression chamber to the drywell when the drywell is at a negative pressure relative to the suppression chamber. Therefore, suppression chamber-to-drywell vacuum breakers prevent an excessive negative differential pressure across the wetwell drywell boundary. Each vacuum breaker is a self-actuating valve, similar to a check valve, which can be remotely operated for testing purposes.

A negative differential pressure across the drywell wall is caused by rapid depressurization of the drywell. Events that cause this rapid depressurization are cooling cycles, inadvertent

drywell spray actuation, and steam condensation from sprays or subcooled water reflood of a break in the event of a primary system rupture. Cooling cycles result in minor pressure transients in the drywell that occur slowly and are normally controlled by heating and ventilation equipment. Spray actuation or spill of subcooled water out of a break results in more significant pressure transients and becomes important in sizing the internal vacuum breakers.

Increased differential pressure between the suppression chamber and the drywell can also be caused by operations that add gas to the suppression chamber or remove gas from the drywell. Such operations include inerting/de-inerting of the primary containment.

In the event of a primary system rupture, steam condensation within the drywell results in the most severe pressure transient. Following a primary system rupture, air in the drywell is purged into the suppression chamber free airspace, leaving the drywell full of steam. Subsequent condensation of the steam can be caused in two possible ways, namely, ECCS flow from a recirculation line break or drywell spray actuation following a LOCA. These two cases determine the maximum depressurization rate of the drywell.

The following SR was evaluated relative to extending the testing intervals. This SR ensures the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.6.1.8.3 Verify the opening setpoint of each required vacuum breaker is ≤ 0.5 psid.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. Demonstration of vacuum breaker opening setpoint is necessary to ensure the safety analysis assumption regarding vacuum breaker full open differential pressure of ≤ 0.5 psid is valid. The interval is based upon the need to perform this SR under the conditions that apply during a plant outage and the potential for an unplanned transient if the SR were performed with the reactor at power. Operating experience shows these components usually pass the SR when performed at the 18-month interval. Extension of this SR interval is further justified because of the more frequent functional testing of each vacuum breaker in the IST program per SR 3.6.1.8.2. Additionally, the system is designed to be single failure proof.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

<u>TS 3.6.3.1 Primary Containment Hydrogen Recombiners</u> (Unit 2 Only)

As stated in the TS Bases, the primary containment hydrogen recombiner eliminates the potential breach of primary containment due to a hydrogen oxygen reaction and is part of combustible gas control required by 10 CFR 50.44, "Standards for Combustible Gas Control

Systems in Light-Water-Cooled Reactors," and GDC 41, "Containment Atmosphere Cleanup." The primary containment hydrogen recombiner is required to reduce the hydrogen concentration in the primary containment following a LOCA. The primary containment hydrogen recombiner accomplishes this by recombining hydrogen and oxygen to form water vapor. The vapor remains in the primary containment, thus eliminating any discharge to the environment. The primary containment hydrogen recombiner is manually initiated since flammability limits will not be reached until several days after a DBA.

The primary containment hydrogen recombiner functions to maintain the hydrogen gas concentration within the containment at or below the flammability limit of 4.0 volume percent (v/o) following a postulated LOCA. It is fully redundant and consists of two 100% capacity subsystems. Each primary containment hydrogen recombiner consists of an enclosed blower assembly, heater section, reaction chamber, direct contact water spray gas cooler, water separator, and associated piping, valves, and instruments. The primary containment hydrogen recombiner will be manually initiated from the MCR when the hydrogen gas concentration in the primary containment reaches 3.3 v/o. When the primary containment is inerted (oxygen concentration < 4.0 v/o), the primary containment hydrogen recombiner will only function until the oxygen is used up (2.0 v/o hydrogen combines with 1.0 v/o oxygen). Two recombiners are provided to meet the requirement for redundancy and independence. Each recombiner is powered from a separate ESF bus and is provided with separate power panel and control panel.

The process gas circulating through the heater, the reaction chamber, and the cooler is automatically regulated to 150 scfm by the use of an orifice plate installed in the cooler. The process gas is heated to approximately 1200°F. The hydrogen and oxygen gases are recombined into water vapor, which is then condensed in the water spray gas cooler by the associated residual heat removal subsystem and discharged with some of the effluent process gas to the suppression chamber. The majority of the cooled, effluent process gas is mixed with the incoming process gas to dilute the incoming gas prior to the mixture entering the heater section.

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.6.3.1.1 Perform a system functional test for each primary containment hydrogen recombiner. (Unit 2 only)

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. Performance of a system functional test for each primary containment hydrogen recombiner ensures the recombiners are OPERABLE and can attain and sustain the temperature necessary for hydrogen recombination. In particular, this SR verifies the minimum heater sheath temperature increases to 1200°F in 1.5 hours and is maintained > 1150°F and < 1300°F for 4 hours thereafter to check the ability of the recombiner to function properly (and to make sure that significant heater elements are not burned out). There are two redundant, independent hydrogen recombiner systems. Operating

experience shows these components usually pass the SR when performed at the 18 month interval.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history revealed that safety function failures are rarely observed during this SR activity. For the associated surveillance test (34SV-T49-001-2S), over the time period monitored (1991 through 1999), only three Category D safety function failures occurred. These failures were:

1. Flow controller 2T49-R601B for 2T49-F003B would not achieve set flow in the automatic mode. Troubleshooting revealed that two configuration parameters were improperly set. The parameters were properly set, and the controller operated satisfactorily.

2. Recombiner 2T49-P600A did not reach 1200°F within the required 90 minutes. The recombiner also failed the resistance and phase current checks. Troubleshooting revealed that a heater element had failed. The heater element was replaced, and the test was repeated satisfactorily.

3. Valve 2T49-F003A was found cycling when the recombiner was placed in service. Troubleshooting revealed that a deadband change was required. The gain and deadband were changed, and the test was repeated satisfactorily.

These unique failures do not suggest a time-based failure mechanism and do not represent a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.6.3.1.2 Visually examine each primary containment hydrogen recombiner enclosure and verify there is no evidence of abnormal conditions. (Unit 2 only)

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR ensures there are no physical problems that could affect recombiner 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, none of which are time-based degradations. A visual inspection is sufficient to determine abnormal conditions that could cause such failures. Operating experience shows these components usually pass the SR when performed at the 18-month Frequency. Finally, there are two independent, redundant hydrogen recombiner systems.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history revealed that safety function failures are rarely observed during this SR activity. For the associated surveillance test (34SV-T49-001-2S), over the time

period monitored (1991 through 1999), only three Category D safety function failures occurred. These failures were:

1. Flow controller 2T49-R601B for 2T49-F003B would not achieve set flow in automatic mode. Troubleshooting revealed that two configuration parameters were improperly set. The parameters were properly set, and the controller operated satisfactorily.

2. Recombiner 2T49-P600A did not reach 1200°F within the required 90 minutes. The recombiner also failed the resistance and phase current checks. Troubleshooting revealed that a heater element had failed. The heater element was replaced, and the test was re-performed satisfactorily.

3. Valve 2T49-F003A was found cycling when the recombiner was placed in service. Troubleshooting revealed that a deadband change was required. The gain and deadband were changed, and the test was re-performed satisfactorily.

These unique failures do not suggest a time-based failure mechanism and do not represent a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.6.3.1.3 Perform a resistance to ground test for each heater phase. (Unit 2 Only)
The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. 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 ≥ 1,000,000 ohms. The development of a ground in a heater circuit is not a time-based mechanism and, therefore, an increase in the surveillance test interval will have no impact on the effectiveness of this test. Operating experience shows that these components usually pass the SR when performed at the 18-month Frequency. Additionally, there are two independent, redundant hydrogen recombiner systems.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history revealed that safety function failures are rarely observed during this SR activity. For the associated surveillance test (34SV-T49-001-2S), over the time period monitored (1991 through 1999), only three Category D safety function failures occurred. These failures were:

1. Flow controller 2T49-R601B for 2T49-F003B would not achieve set flow in automatic mode. Troubleshooting revealed that two configuration parameters were improperly set. The parameters were properly set, and the controller operated satisfactorily.

2. Recombiner 2T49-P600A did not reach 1200°F within the required 90 minutes. The recombiner also failed the resistance and phase current checks.

Troubleshooting revealed that a heater element had failed. The heater element was replaced, and the test was re-performed satisfactorily.

3. Valve 2T49-F003A was found cycling when the recombiner was placed in service. Troubleshooting revealed that a deadband change was required. The gain and deadband were changed, and the test was re-performed satisfactorily.

These failures do not suggest a time-based failure mechanism. These failures are each unique and are not considered to represent a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.6.4.1 Secondary Containment

As stated in the TS Bases, the function of the secondary containment is to contain, dilute, and hold up fission products that may leak from primary containment following a DBA. In conjunction with operation of the SGT System and closure of certain valves whose lines penetrate the secondary containment, the secondary containment is designed to reduce the activity level of the fission products prior to release to the environment and to isolate and contain fission products that are released during certain operations that take place inside primary containment, when primary containment is not required to be OPERABLE, or that take place outside primary containment.

The secondary containment is a structure that completely encloses the primary containment and those components that may be postulated to contain primary system fluid. This structure forms a control volume that serves to hold up and dilute the fission products. It is possible for the pressure in the control volume to rise relative to the environmental pressure (e.g., due to pump and motor heat load additions). The secondary containment encompasses three separate zones: the Unit 1 reactor building (Zone I), the Unit 2 reactor building (Zone II), and the common refueling floor (Zone III).

To prevent ground level exfiltration while allowing the secondary containment to be designed as a conventional structure, the secondary containment requires support systems to maintain the control volume pressure at less than the external pressure. Requirements for these systems are specified separately in LCO 3.6.4.2, "Secondary Containment Isolation Valves (SCIVs)," and LCO 3.6.4.3, "Standby Gas Treatment (SGT) System." When one or more zones are excluded from secondary containment, the specific requirements for the support systems will also change (e.g., securing particular SGT or drain isolation valves).

There are two principal accidents for which credit is taken for secondary containment OPERABILITY. These are a LOCA and a fuel handling accident inside secondary containment. The secondary containment performs no active function in response to either of these limiting events; however, its leak tightness is required to ensure the release of radioactive materials from the primary containment is restricted to those leakage paths and associated leakage rates assumed in the safety analysis and that fission products entrapped within the secondary containment structure will be treated by the Unit 1 and Unit 2 SGT Systems prior to discharge to the environment. Postulated LOCA leakage paths from the primary containment into secondary

containment include those into both the reactor building and refueling floor areas (e.g., drywell head leakage).

An OPERABLE secondary containment provides a control volume into which fission products that bypass or leak from primary containment, or are released from the RCPB components located in secondary containment, can be diluted and processed prior to release to the environment. For the secondary containment to be considered OPERABLE, it must have adequate leak tightness to ensure the required vacuum (0.20 inch of vacuum) can be established and maintained. The secondary containment boundary required to be OPERABLE is dependent on the operating status of both units, as well as the configuration of doors, hatches, refueling floor plugs, SCIVs, and available flow paths to the SGT Systems. The required boundary encompasses the zones which can be postulated to contain fission products from accidents required to be considered for the condition of each unit, and furthermore, must include zones not isolated from the SGT subsystems being credited for meeting LCO 3.6.4.3.

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.6.4.1.3 Verify required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch of vacuum water gauge in ≤ 120 seconds

The surveillance test interval for this SR is being increased from 18 months on a STAGGERED TEST BASIS, to 24 months on a STAGGERED TEST BASIS, for a maximum interval of 30 months, including the 25% grace period. To ensure all fission products are treated, this SR 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. Since this SR is a secondary containment test, it need not be performed with each SGT subsystem. The SGT subsystems are tested on a STAGGERED TEST BASIS. 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 (TRM). The Note to this SR specifies that the number of required SGT subsystems be one less than the number required to meet LCO 3.6.4.3 for the given configuration. Operating experience shows these components usually pass the SR when performed at the 18-month interval. There are no identified time-based degradations that will cause failure of this test, since this test merely confirms that the secondary containment boundary is intact.

Therefore, based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history revealed that safety function failures are rarely observed during this SR activity. For the associated surveillance test (34SV-T22-001-0S), over the time period monitored (1990 through 1999), there were 13 performances. During this span, only one

Category D safety function failure occurred. In that instance, during a Type B1 secondary containment test, 0.25 inches vacuum could not be achieved.

This single failure is not indicative of a time-based failure mechanism and does not suggest a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.6.4.1.4 Verify required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 4000 cfm for each subsystem

The surveillance test interval for this SR is being increased from 18 months on a STAGGERED TEST BASIS, to 24 months on a STAGGERED TEST BASIS, for a maximum interval of 30 months, including the 25% grace period. This SR demonstrates 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. This cannot be accomplished if the secondary containment boundary is not intact. Since this SR is a secondary containment test, it need not be performed with each SGT subsystem. The SGT subsystems are tested on a STAGGERED TEST BASIS. The number of SGT subsystems and the required combinations are dependent upon the configuration of the secondary containment and are detailed in the TRM. The Note to this SR specifies that the number of required SGT subsystems be one less than the number required to meet LCO 3.6.4.3 for the given configuration. Operating experience shows these components usually pass the SR when performed at the 18-month interval. No time-based degradations that will cause failure of this test were identified, since this test merely confirms the secondary containment boundary is intact.

Therefore, based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history revealed that safety function failures are rarely observed during this SR activity. For the associated surveillance test (13 performances involving 34SV-T22-001-0S), over the time period monitored (1990 through 1999), only one Category D safety function failure occurred. That is, during a Type B1 secondary containment test, 0.25 inches vacuum could not be achieved.

This single failure is not indicative of a time-based failure mechanism and does not suggest a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

As stated in the TS Bases, the function of the SCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated DBAs. Secondary containment isolation within the time limits specified for the isolation valves designed to close automatically ensures fission products are maintained within the secondary containment boundary.

Automatic SCIVs close on a secondary containment isolation signal to establish a boundary for untreated radioactive material within secondary containment following a DBA or other accidents. Maintaining SCIVs OPERABLE with isolation times within limits ensures fission products will remain trapped inside secondary containment so that the SGT System prior to discharge to the environment can treat them.

The following SR was evaluated relative to extending the testing intervals. This SR ensures the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.6.4.2.3 Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.

The surveillance test interval for this SR is being increased from 18 months on a STAGGERED TEST BASIS, to 24 months on a STAGGERED TEST BASIS, for a maximum interval of 30 months, including the 25% grace period. This SR ensures 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. Additionally, the isolation time of each power operated and each automatic SCIV is verified to be within limits SR 3.6.4.2.2 (every 184 days). The interval for the subject SR is based upon the need to perform this SR under the conditions that apply during a plant outage and the potential for an unplanned transient if the SR were performed with the reactor at power. Operating experience shows these components usually pass the SR when performed at the 18-month interval.

Therefore, based upon more frequent testing and operating experience, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.6.4.3 Standby Gas Treatment (SGT) System

As stated in the TS Bases, the SGT System is required by 10 CFR 50, Appendix A, GDC 41, "Containment Atmosphere Cleanup." The function of the SGT System is to ensure radioactive materials that leak from the primary containment into the secondary containment following a DBA are filtered and adsorbed prior to exhausting to the environment.

The Unit 1 SGT System and the Unit 2 SGT System consist of two fully redundant subsystems, each with its own set of dampers, charcoal filter train, and controls. The Unit 1 SGT subsystems' ductwork is separate from the inlet to the filter train to the discharge of the fan. The rest of the ductwork is common. The Unit 2 SGT subsystems' ductwork is separate except for the suction from the drywell and torus, which is common. (However, this suction path is not required for subsystem OPERABILITY.)

The Unit 1 and Unit 2 SGT Systems automatically start and operate in response to actuation signals indicative of conditions or an accident that could require operation of the system. Following initiation, all required charcoal filter train fans start. Upon verification that the required subsystems are operating, the redundant required subsystem is normally shut down.

The following SR was evaluated relative to extending the testing intervals. This SR ensures the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.6.4.3.3 Verify each required SGT subsystem actuates on an actual or simulated initiation signal.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. 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. Extending the surveillance interval for this verification is acceptable, because the system is regularly operated to satisfy the requirements of SR 3.6.4.3.1 (every 31 days). This test will detect significant failures affecting system operation that will be detected by conducting the testing for this SR. Operating experience shows these components usually pass the SR when performed at the 18-month interval. In addition, the SGT system is designed with redundancy to meet the single active failure criteria, which will ensure system availability in the event of a failure of one of the system components.

The actual or simulated initiation signals are equivalent to a LOGIC SYSTEM FUNCTIONAL TEST. As stated in Ref. 1:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Based upon the redundancy and the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history for the associated surveillance tests (17 performances involving 42SV-SUV-031-2S and 42SV-T46-001-1(2(S)) revealed that failures are rarely observed during this SR activity. For both units, over the time period monitored (1990 through 1999), only one Category D safety function failure occurred. That is, during performance of 42SV-T46-001-1S, a failed flow switch prevented a fan from starting.

This failure does not suggest a time-based failure mechanism. This failure is unique and is not considered to represent a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.7.2 Plant Service Water (PSW) System and Ultimate Heat Sink (UHS)

As stated in the TS Bases, the PSW System is designed to provide cooling water for the removal of heat from equipment, such as the DGs, RHR pump coolers, and room coolers for ECCS equipment, required for a safe reactor shutdown following a DBA or transient. The PSW System also provides cooling to unit components, as required, during normal operation. Upon receipt of an LOSP or a LOCA signal, nonessential loads are automatically isolated, the essential loads are automatically divided between PSW Divisions 1 and 2, and one PSW pump is automatically started in each division.

The PSW System consists of the UHS and two independent and redundant subsystems. Each of the two PSW subsystems is made up of a header, two 8500 gpm pumps, a suction source, valves, piping and associated instrumentation. Either of the two subsystems is capable of providing the required cooling capacity to support the required systems with one pump operating. The two subsystems are separated from each other so failure of one subsystem will not affect the OPERABILITY of the other system.

The following SR was evaluated relative to extending the testing intervals. This SR ensures the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.7.2.3 Verify each PSW subsystem actuates on an actual or simulated initiation signal.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. 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 SR also verifies the automatic start capability (on a LOCA or an LOSP signal) of one of the two PSW pumps in each subsystem. Operating experience shows that these components usually pass the SR when performed at the 18-month interval. Extending the surveillance interval for this verification is acceptable, because the valves are operated more frequently to satisfy IST requirements. These tests detect significant failures affecting valve operation that are detected by conducting the 18-month surveillance test. In addition, the PSW System consists of the UHS and two independent and redundant subsystems, which will ensure system availability in the event of a failure of one of the system components. Furthermore, as stated in Ref. 1:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of

the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Based upon the redundancy and the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history for the associated surveillance tests revealed that failures for this safety function are rarely observed, especially considering the large number of tests performed to satisfy this SR. For the associated surveillance tests, over the time period monitored (1990 through 1999), there were 37 performances of the surveillance tests which satisfy this SR. Over that span, only one Category D safety function failure occurred. During a performance of 42SV-P41-001-1S, valve 1P41-F310D failed to actuate. During the subsequent maintenance activity, the following problems were identified and corrected:

- Relay1P41-K27 for valve 1P41-F310D had a loose wire that was tightened.
- Stuck contacts were found on a relay (not specifically identified). The relay was exercised, and after that was working properly.

These unique failures do not suggest a time-based failure mechanism and do not represent a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.7.3 Diesel Generator (DG) 1B Standby Service Water (SSW) System

As stated in the TS Bases, the DG 1B SSW System is designed to provide cooling water for the removal of heat from the DG 1B. DG 1B is the only component served by the DG 1B SSW System. The DG 1B SSW pump autostarts upon receipt of a DG start signal when power is available to the pump's electrical bus. The DG 1B SSW pump delivers water from the Altamaha River to the essential DG components through the SSW supply header. After removing heat from the components, the water is discharged to the PSW discharge header. The capability exists to manually cross connect the PSW System to supply cooling to the DG 1B during times when the SSW pump is Inoperable.

The ability of the DG 1B SSW System to provide adequate cooling to the DG 1B is an implicit assumption for the safety analysis presented in the FSAR. The ability to provide onsite emergency AC power is dependent upon the ability of the DG 1B SSW System to cool DG 1B.

The following SR was evaluated relative to extending the testing intervals. This SR ensures the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.7.3.2 Verify the DG 1B SSW System pump starts automatically when DG 1B starts and energizes the respective bus.

The surveillance test interval for this SR is being increased from 18 months to 24 months for a maximum interval of 30 months, including the 25% grace period. This SR ensures 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. The OPERABILITY of the DG 1B SSW System is based upon having an OPERABLE pump and an OPERABLE flow path. Valve lineup is checked more frequently via SR 3.7.3.1 (every 31 days). An adequate suction source is not addressed in this LCO, since the minimum net positive suction head of the DG 1B SSW pump is bounded by the PSW requirements [TS 3.7.2, "Plant Service Water (PSW) System and Ultimate Heat Sink (UHS)"]. Operating experience shows these components usually pass the SR when performed at the 18-month interval, which is based upon the refueling cycle. The capability exists to manually cross connect the PSW System to supply cooling to the DG 1B when the SSW pump is inoperable.

Therefore, based upon the above statements, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.7.4 Main Control Room Environmental Control (MCREC) System

As stated in the TS Bases, the MCREC System provides a radiologically controlled environment from which the plant can be safely operated following a DBA. The safety-related function of the MCREC System includes two independent and redundant high efficiency air filtration subsystems for emergency treatment of recirculated air and outside supply air. Each subsystem consists of a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section, a second HEPA filter, a booster fan, and the associated ductwork and dampers. Additionally, one air handling unit (AHU) fan is required for each subsystem to assist in the pressurization function. AHU fans are also addressed as part of TS LCO 3.7.5, "Control Room Air Conditioning (AC) System." Prefilters and HEPA filters remove particulate matter, which may be radioactive. The charcoal adsorbers provide a holdup period for gaseous iodine, allowing time for decay.

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.7.4.3 Verify each MCREC subsystem actuates on an actual or simulated initiation signal.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months including the 25% grace period. 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. Extending the surveillance interval for this SR is acceptable, because the MCREC subsystem is operated more frequently to satisfy the requirements of SR 3.7.4.1 (every 31 days). These tests will detect significant failures affecting operation that will also be detected by conducting the 18-month surveillance test. Operating experience shows these components usually pass the SR when performed at the 18-month interval. In addition, the MCREC System active components and power supplies are designed with redundancy to meet the single active failure criteria, which will ensure system availability in the event of a failure of one of the system components. Furthermore, as stated in Ref. 1:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Based upon the redundancy and the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.7.4.4 Verify each MCREC subsystem can maintain a positive pressure of ≥ 0.1 inches water gauge relative to the turbine building during the pressurization mode of operation at a subsystem flow rate of ≤ 2750 cfm and an outside air flow rate ≤ 400 cfm.

The surveillance test interval for this SR is being increased from 18 months on a STAGGERED TEST BASIS to 24 months on a STAGGERED TEST BASIS, for a maximum interval of 30 months, including the 25% grace period. This SR verifies the integrity of the MCR enclosure and the assumed inleakage rates of potentially contaminated air. The MCR positive pressure, relative 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 pressurize the MCR ≥ 0.1 inches water gauge positive pressure relative 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 MCR in the pressurization Mode. This SR ensures the total flow rate meets the design analysis value of 2500 cfm ± 10% and ensures the outside air flow rate is ≤ 400 cfm.

Extending this surveillance interval is justified, since the MCREC system is operated for 15 minutes or greater on a more frequent basis per SR 3.7.4.1 (every 31 days), and because the filters are tested in accordance with the Ventilation Filter Test Program per SR 3.7.4.2. Significant equipment degradations will be detected in the performance of the testing associated with these SRs. Additionally, there are two independent MCREC subsystems, which are each capable of fulfilling the stated safety function, and the design of the systems is single active failure proof. The interval of 24 months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration systems SRs.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.7.5 Control Room Air Conditioning (AC) System

As stated in the TS Bases, the Control Room AC System consists of three 50% capacity subsystems that provide cooling and heating of MCR supply air. Each subsystem consists of an AHU (i.e., cooling coils and fan), water-cooled condensing units, refrigerant compressors, ductwork, dampers, and instrumentation and controls to provide for MCR temperature control. The condensing units receive cooling water from the PSW System. The Control Room AC System is designed to provide a controlled environment under both normal and accident conditions. Two subsystems provide the required temperature control to maintain a suitable MCR environment for a sustained occupancy of 14 persons. The design conditions for the MCR environment are 72-79°F and < 75% relative humidity.

The Control Room AC System components are arranged in three 50% capacity safety related subsystems. During emergency operation, the Control Room AC System maintains a habitable environment and ensures the OPERABILITY of components in the MCR. A single failure of a component of the Control Room AC System, assuming an LOSP, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for MCR temperature control. The Control Room AC System is designed in accordance with Seismic Category 1 requirements. The Control Room AC System is capable of removing sensible and latent heat loads from the MCR, including consideration of equipment heat loads and personnel occupancy requirements to ensure equipment OPERABILITY.

The following SR was evaluated relative to extending the testing intervals. This SR ensures the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.7.5.1 Verify each control room AC subsystem has the capability to remove the assumed heat load.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR verifies that the heat removal capability of the system is sufficient to remove the MCR heat load assumed in the safety analysis. The SR consists of a combination of testing and calculation. The Control Room HVAC System provides a suitable environment for continuous personnel occupancy and ensures the OPERABILITY of MCR equipment and instruments under normal and accident conditions.

Proper operation of the system (i.e., operation with proper flow rates for makeup and exhaust, maintaining appropriate temperature and comfort levels) verifies the OPERABILITY of the MCR

HVAC System. The system is normally operating; thus, any major malfunction of the cooling units (during summer months) will be detected by Operations and corrected. Since the plant will normally experience two summer cooling seasons during the extended fuel cycle, there are more frequent opportunities to determine if system operation is adequate. If the heat removal capability of the HVAC system is not reduced the only other change which will impact the ability of the system to remove the heat load will be an increase in heat load in the MCR. Changes in MCR heat load will be evaluated for effects on safe shutdown, station blackout, and other more restrictive concerns.

The Control Room AC System is designed to be highly reliable, and has built in redundancy as components are arranged in three 50% capacity safety related subsystems. A single failure of a component of the Control Room AC System, assuming a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for MCR temperature control.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.7.7 Main Turbine Bypass System

As stated in the TS Bases, the Main Turbine Bypass System is designed to control steam pressure when reactor steam generation exceeds turbine requirements during unit startup, sudden load reduction, and cooldown. It allows excess steam flow from the reactor to the condenser without going through the turbine. The bypass capacity of the system is approximately 21% of the turbine design steam flow. Sudden load reductions within the capacity of the steam bypass can be accommodated without reactor scram. The Main Turbine Bypass System consists of three valves connected to the MSLs between the main steam isolation valves and the turbine stop valves. Hydraulic cylinders operate each of these three valves. The bypass valves are controlled by the pressure regulation function of the Turbine Electrohydraulic Control System. The bypass valves are normally closed, and the pressure regulator controls the turbine control valves that direct all steam flow to the turbine. If the speed governor or the load limiter restricts steam flow to the turbine, the pressure regulator controls the system pressure by opening the bypass valves. When the bypass valves open, the steam flows from the bypass chest, through connecting piping, to the pressure breakdown assemblies, where a series of orifices are used to further reduce the steam pressure before the steam enters the condenser.

The Main Turbine Bypass System is assumed to function during the feedwater controller failure to maximum flow demand. Opening the bypass valves during the pressurization event (subsequent to the resulting main turbine trip) mitigates the increase in RPV pressure, which affects the MCPR during the event. An inoperable Main Turbine Bypass System may result in an MCPR penalty.

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis

events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.7.7.2 Perform a system functional test.
The surveillance test interval for this SR as applied to the Main Turbine Bypass System is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR ensures the Turbine Bypass System will function as designed in response to steam demand changes within the capability of the system. 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 interval is based upon the need to perform this SR under the conditions that apply during a unit outage and because of the potential for an unplanned transient if the SR were performed with the reactor at power. Operating experience shows the system normally passes this test when performed on an 18-month interval.

Extending the surveillance test interval for the system functional test is acceptable, because operation of the turbine bypass valves is verified more frequently per SR 3.7.7.1 (every 31 days). This testing ensures a significant portion of the circuitry is operating properly and will detect significant failures of this circuitry. Additional justification for extending the surveillance test interval is that the network, including the actuating logic, is designed to be highly reliable. Furthermore, as stated in Ref. 1:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.7.7.3 Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.
The surveillance test interval for this SR as applied to the Turbine Bypass System is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR ensures the system functions within the response time assumed in the analyses of the applicable analyzed event. This SR ensures the TURBINE BYPASS SYSTEM RESPONSE TIME is in compliance with the assumptions of the appropriate safety analysis. The response time limits are specified in TRM. The interval is based upon the need to perform this SR under the conditions that apply during a unit outage and because of the potential for an unplanned transient if the SR is performed with the reactor at power. Operating

experience shows the equipment normally passes these tests when performed on an 18-month interval.

Extending the interval between response time tests for this Function is acceptable, because the system components are verified to be operating properly throughout the operating cycle by the performance SR 3.7.7.1 (every 31 days), which requires a complete cycle of each main turbine bypass valve. The major considerations for system response time testing include time of power supply availability, time for actuation signal, and the time associated with the automatic valve operation. Power availability and signal development time are either verified by other TS requirements or are not required. Although the IST valve testing does not verify valve stroke time on a more frequent basis, the ability of the valve to stroke is verified and any substantially excessive stroke time will be noticed at the time of operation. These tests detect major degradation in system components that can impact system response time.

Based upon the above discussion, the effect, if any, of this proposed change on system availability is minimal.

A review of the surveillance test history for the associated surveillance tests revealed that failures for this safety function are rarely observed. For the associated surveillance tests (57SV-MNT-005-1S and 57SV-MNT-009-2S), over the time period monitored (1990 through 1999), there were 11 performances of the surveillance tests which satisfy this SR. Over that span, only one Category D safety function failure occurred. That is, during a performance of 57SV-MNT-009-2S (performed prior to turbine bypass valve disassembly for inspection), the as-found time exceeded the acceptable tolerances, and the test included no provisions to adjust the times.

This failure is not indicative of a time-based failure mechanism and does not represent a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

TS 3.8.1 AC Sources - Operating

The following is a description of the AC Sources for Unit 1. Unit 2 is similar in design. As stated in the TS Bases, the Unit 1 Class 1E AC Electrical Power Distribution System AC sources consist of the offsite power sources (preferred power sources, normal and alternate), and the onsite standby power sources (DGs 1A, 1B, and 1C). As required by 10 CFR 50, Appendix A, GDC 17, the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the ESF systems.

The Class 1E AC distribution system is divided into redundant load groups, so loss of any one group does not prevent the minimum safety functions from being performed. Each load group has connections to two preferred offsite power supplies and a single DG.

Offsite power is supplied to the 230 kV and 500 kV switchyards from the transmission network by eight transmission lines. From the 230 kV switchyards, two electrically and physically separated circuits provide AC power, through startup auxiliary transformers 1C and 1D, to 4.16 kV ESF buses 1E, 1F, and 1G. An offsite circuit consists of all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite

transmission network to the onsite Class 1E ESF bus or buses. Startup auxiliary transformer (SAT) 1D provides the normal source of power to the ESF buses 1E, 1F, and 1G. If any 4.16 kV ESF bus loses power, an automatic transfer from SAT 1D to SAT 1C occurs. At this time, 4.16 kV buses 1A and 1B and supply breakers from SAT 1C also trip open, disconnecting all nonessential loads from SAT 1C to preclude overloading of the transformer. SATs 1C and 1D are sized to accommodate the simultaneous starting of all required ESF loads on receipt of an accident signal without the need for load sequencing. However, ESF loads are sequenced when the associated 4.16 kV ESF bus is supplied from SAT 1C.

The onsite standby power source for 4.16 kV ESF buses 1E, 1F, and 1G consists of three DGs. DGs 1A and 1C are dedicated to ESF buses 1E and 1G, respectively. DG 1B (the swing DG) is a shared power source and can supply either Unit 1 ESF bus 1F or Unit 2 ESF bus 2F. A DG starts automatically on a LOCA signal (i.e., low reactor water level signal or high drywell pressure signal) or on an ESF bus degraded voltage or undervoltage signal. After the DG starts, it automatically ties to its respective bus after offsite power is tripped as a consequence of ESF bus undervoltage or degraded voltage, independent of or coincident with a LOCA signal. The DGs also start and operate in the standby Mode without tying to the ESF bus on a LOCA signal alone. Following the trip of offsite power, load shed relays strip nonpermanent loads from the ESF bus. When the DG is tied to the ESF bus, loads are sequentially connected to its respective ESF bus by the automatic load sequence timing devices. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG.

In the event of a loss of preferred power, the ESF electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a DBA, such as a LOCA.

Certain required plant loads are returned to service in a predetermined sequence in order to prevent overloading of the DGs in the process. After the initiating signal is received, all automatic and permanently connected loads needed to recover the unit or maintain it in a safe condition are returned to service (i.e., the loads are energized.)

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.8.1.6 Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. 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. This SR tests the applicable logic associated with the swing bus. The surveillance interval considers the plant conditions required to perform the SR, and is intended to be consistent with expected fuel-cycle lengths. Operating experience shows these components usually pass the SR when performed on an 18-month interval.

From the 230 kV switchyards, two electrically and physically separated circuits provide AC power, through startup auxiliary transformers 1C (2C) and 1D (2D), to 4.16 kV ESF buses 1E (2E), 1F (2F) , and 1G (2G). An offsite circuit consists of all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E ESF bus or buses. Startup auxiliary transformer (SAT) 1D (2D) provides the normal source of power to the ESF buses 1E (2E), 1F (2F) , and 1G (2G). If any 4.16 kV ESF bus loses power, an automatic transfer from SAT 1D (2D) to SAT 1C (2C) occurs. Onsite power sources are available for redundancy in case of the total loss of offsite power, in the form of DGs and batteries.

Extending the surveillance interval for this SR is acceptable for the following reasons: the design, in conjunction with TS requirements which limit the extent and duration of Inoperable AC sources, provides substantial redundancy in AC sources; Breaker verification and periodic breaker maintenance is based upon performance history for the breakers and is designed for maximum availability.

The portions of the test not directly associated with the functioning of the offsite source and breaker movement are equivalent to a LOGIC SYSTEM FUNCTIONAL TEST. For these logic tests, Ref. 1 documents the following conclusion:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is small.

A review of the surveillance test history was performed to validate the above conclusion. The results of this review demonstrate that no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

SR 3.8.1.7 Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and:

a. Following load rejection, the frequency is ≤ 65.5 Hz; and

b. Within 3 seconds following load rejection, the voltage is ≥ 3740 V and ≤ 4580 V.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. 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 SR 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.

This SR verifies the proper operation of the governor and load control circuits. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. During the operating cycle, the DGs are subjected to operational testing per SR 3.8.1.2 (every 31 days) and fast-start testing per SR 3.8.1.5 (every 184 days). This testing provides confidence of DG OPERABILITY and the capability to perform its intended function. The testing will also provide prompt identification of any substantial DG degradation or failure.

2. DGs are infrequently operated, usually only to satisfy a SR or to comply with LCO 3.8.1; thus, the risk of wear-related degradation is minimal.

3. DG attributes subject to degradation due to aging, such as fuel oil quality, are subject to the requirements for replenishment and testing.

4. Historical testing and surveillance testing during operation prove the ability of the diesel engines to start and operate under various load conditions.

5. Through the normal engineering design process, HNP tracks all load additions and deletions and verifies that any changes to loading are well within the capacity of the DGs. DG loading and sequencing calculations are maintained, based upon the as-built configuration, which consider the effects of planned design changes. The emergency loads used for this SR bound those for the actual installed configuration.

An evaluation of identified failures was performed to determine if the failure modes contained time-based elements that can impact the extension of the surveillance interval. This evaluation determined that identified failures did not contain time-based elements that will invalidate the conclusion that the increased surveillance interval will have a small, if any, impact on system reliability.

A review of the surveillance test history was performed to validate the above conclusion. The results of this review demonstrate that no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR revises the commitment to RG 1.108 to perform the DG test at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

SR 3.8.1.8 Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR verifies the proper operation of the governor and load control circuits. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. During the operating cycle, the DGs are subjected to operational testing per SR 3.8.1.2 (every 31 days) and fast-start testing per SR 3.8.1.5 (every 184 days). This testing provides confidence of DG OPERABILITY and the capability to perform its intended function. The testing will also provide prompt identification of any substantial DG degradation or failure.

2. DGs are infrequently operated, usually only to satisfy a SR or to comply with LCO 3.8.1; thus, the risk of wear-related degradation is minimal.

3. DG attributes subject to degradation due to aging, such as fuel oil quality, are subject to the requirements for replenishment and testing.

4. Historical testing and surveillance testing during operation prove the ability of the diesel engines to start and operate under various load conditions.

5. Through the normal engineering design process, HNP tracks all load additions and deletions and verifies that any changes to loading are well within the capacity of the DGs. DG loading and sequencing calculations are maintained, based upon the as-built configuration, which consider the effects of planned design changes. The emergency loads used for this SR bound those for the actual installed configuration.

An evaluation of identified failures was performed to determine if the failure modes contained time-based elements that can impact the extension of the surveillance interval. This evaluation determined that identified failures did not contain time-based elements that will invalidate the conclusion that the increased operating cycle will have a small, if any, impact on system reliability.

Therefore, based upon the above discussion, the effect, if any, of this proposed change on system availability is small.

A review of the surveillance test history was performed to validate the above conclusion. The results of this review demonstrate that no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR revises the commitment to RG 1.108 to perform the DG test at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

SR 3.8.1.9 Verify on an actual or simulated loss of offsite power signal:

- **a. De-energization of emergency buses;**
- **b. Load shedding from emergency buses; and**
- **c. DG auto-starts from standby condition and:**
  1. **Energizes permanently connected loads in ≤ 12 seconds,**
  2. **Energizes auto-connected shutdown loads through automatic load sequence timing devices,**
  3. **Maintains steady state voltage ≥ 3740 V and ≤ 4243 V,**
  4. **Maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and**
  5. **Supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.**

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR demonstrates the as-designed operation of the standby power sources during loss of the offsite source. 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 automatically achieve the required voltage and frequency within the specified time. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. During the operating cycle, the DGs are subjected to operational testing per SR 3.8.1.2 (every 31 days) and fast-start testing per SR 3.8.1.5 (every 184 days). This testing provides confidence of DG OPERABILITY and the capability to perform its intended function. The testing will also provide prompt identification of any substantial DG degradation or failure.

2. DGs are infrequently operated, usually only to satisfy a SR or to comply with LCO 3.8.1; thus, the risk of wear-related degradation is minimal.

3. DG attributes subject to degradation due to aging, such as fuel oil quality, are subject to the requirements for replenishment and testing.

4. Historical testing and surveillance testing during operation prove the ability of the diesel engines to start and operate under various load conditions.

5. Through the normal engineering design process, HNP tracks all load additions and deletions and verifies that any changes to loading are well within the capacity of the DGs. DG loading and sequencing calculations are maintained, based upon the as-built configuration, which consider the effects of planned design changes. The emergency loads used for this SR bound those for the actual installed configuration.

The portions of the test not directly associated with the functioning of the DG and breaker movement are equivalent to a LOGIC SYSTEM FUNCTIONAL TEST. For these logic tests, Ref. 1 documents the following conclusion:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is small.

A review of the surveillance test history was performed to validate the above conclusion. The results of this review demonstrate that no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR revises the commitment to RG 1.108 to perform the DG test at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

SR 3.8.1.10 Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and:

a. In ≤ 12 seconds after auto-start achieves voltage ≥ 3740 V, and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V;

b. In ≤ 12 seconds after auto-start achieves frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and

c. Operates for ≥ 5 minutes.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time from the design basis actuation signal and operates for ≥ 5 minutes. The 5-minute period provides sufficient time to demonstrate stability. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. During the operating cycle, the DGs are subjected to operational testing per SR 3.8.1.2 (every 31 days) and fast-start testing per SR 3.8.1.5 (every 184 days). This testing provides confidence of DG OPERABILITY and the capability to perform its intended function. The testing will also provide prompt identification of any substantial DG degradation or failure.

2. DGs are infrequently operated, usually only to satisfy a SR or to comply with LCO 3.8.1; thus, the risk of wear-related degradation is minimal.

3. DG attributes subject to degradation due to aging, such as fuel oil quality, are subject to the requirements for replenishment and testing.

4. Historical testing and surveillance testing during operation prove the ability of the diesel engines to start and operate under various load conditions.

5. Through the normal engineering design process, HNP tracks all load additions and deletions and verifies that any changes to loading are well within the capacity of the DGs. DG loading and sequencing calculations are maintained, based upon the as-built configuration, which consider the effects of planned design changes. The emergency loads used for this SR bound those for the actual installed configuration.

The portions of the test not directly associated with the functioning of the DG and breaker movement are equivalent to a LOGIC SYSTEM FUNCTIONAL TEST. For these logic tests, Ref. 1 documents the following conclusion:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is small.

A review of the surveillance test history for the associated surveillance tests revealed that failures for this safety function are rarely observed, especially considering the large number of tests performed to satisfy this SR. For the associated surveillance tests, over the time period monitored (1991 through 1999), there were 21 performances of the surveillance tests that satisfy this SR. Over that span, only one Category D safety function failure occurred. That is, during a performance of 42SV-R43-012-2S, the 2D RHR pump failed to start. The associated breaker was thoroughly inspected, but no problems were found. The breaker was retested satisfactorily.

This failure is not indicative of a time-based failure mechanism and does not represent a pattern of repetitive failure. Therefore, no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR revises the commitment to RG 1.108 to perform the DG test at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

SR 3.8.1.11 Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ECCS initiation signal except:
a. Engine overspeed;
b. Generator differential current; and
c. Low lube oil pressure.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR is essentially a LOGIC SYSTEM FUNCTIONAL TEST since the normal operation of the DG has all automatic trips active, and the trips are only bypassed with an ECCS initiation signal. For these logic tests, Ref. 1 documents the following conclusion:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is small.

A review of the surveillance test history was performed to validate the above conclusion. The results of this review demonstrate that no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR revises the commitment to RG 1.108 to perform the DG at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

SR 3.8.1.12 Verify each DG operating at a power factor ≤ 0.88 operates for ≥ 24 hours:
a. For ≥ 2 hours loaded ≥ 3000 kW; and
b. For the remaining hours of the test loaded ≥ 2775 kW and ≤ 2825 kW.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR demonstrates the DG meets RG 1.108 paragraph 2.a.(3), which requires demonstration once per 18 months that the DGs can start and run continuously at full-load capability for an interval of not < 24 hours (22 hours of which is at a load equivalent to the continuous rating of the DG and 2 hours of which is at a load equivalent to 110% of the continuous duty rating of the DG). Extending the surveillance interval for this SR is acceptable for the following reasons:

1. During the operating cycle, the DGs are subjected to operational testing per SR 3.8.1.2 (every 31 days) and fast-start testing per SR 3.8.1.5 (every 184 days). This testing provides confidence of DG OPERABILITY and the capability to

perform its intended function. The testing will also provide prompt identification of any substantial DG degradation or failure.

2. DGs are infrequently operated, usually only to satisfy a SR or to comply with LCO 3.8.1; thus, the risk of wear-related degradation is minimal.

3. DG attributes subject to degradation due to aging, such as fuel oil quality, are subject to the requirements for replenishment and testing.

4. Historical testing and surveillance testing during operation prove the ability of the diesel engines to start and operate under various load conditions.

5. Through the normal engineering design process, HNP tracks all load additions and deletions and verifies that any changes to loading are well within the capacity of the DGs. DG loading and sequencing calculations are maintained, based upon the as-built configuration, which consider the effects of planned design changes. The emergency loads used for this SR bound those for the actual installed configuration.

The portions of the test not directly associated with the functioning of the DG and breaker movement are equivalent to a LOGIC SYSTEM FUNCTIONAL TEST. For these logic tests, Ref. 1 documents the following conclusion:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is small.

A review of the surveillance test history for the associated DG OPERABILITY tests [34SV-R43-011-1(2)S, 34SV-R43-012-2S, and 34SV-R43-013-1(2)S] revealed that failures are rarely observed during this SR activity. For the associated surveillance tests, over the time period monitored (1994 through 1999), there were 13 performances of the associated DG OPERABILITY tests. Only one Category D safety function failure occurred. That is, during performance of 34SV-R43-012-2S, a high resistance on the breaker spring motor toggle switch caused a breaker to fail.

This failure is not indicative of a repetitive time-based failure mechanism. Therefore, no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR revises the commitment to RG 1.108 to perform the DG test at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

SR 3.8.1.13 Verify each DG starts and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR demonstrates the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal SR, and achieve the required voltage and frequency within 12 seconds and maintain the required voltage and frequency. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. During the operating cycle, the DGs are subjected to operational testing per SR 3.8.1.2 (every 31 days) and fast-start testing per SR 3.8.1.5 (every 184 days). This testing provides confidence of DG OPERABILITY and the capability to perform its intended function. The testing will also provide prompt identification of any substantial DG degradation or failure.

2. DGs are infrequently operated, usually only to satisfy a SR or to comply with LCO 3.8.1; thus, the risk of wear-related degradation is minimal.

3. DG attributes subject to degradation due to aging, such as fuel oil quality, are subject to the requirements for replenishment and testing.

4. Historical testing and surveillance testing during operation prove the ability of the diesel engines to start and operate under various load conditions.

5. Through the normal engineering design process, HNP tracks all load additions and deletions and verifies that any changes to loading are well within the capacity of the DGs. DG loading and sequencing calculations are maintained, based upon the as-built configuration, which consider the effects of planned design changes. The emergency loads used for this SR bound those for the actual installed configuration.

The portions of the test not directly associated with the functioning of the DG and breaker movement are equivalent to a LOGIC SYSTEM FUNCTIONAL TEST. For these logic tests, Ref. 1 documents the following conclusion:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure

is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is small.

A review of the surveillance test history for the associated DG OPERABILITY tests [34SV-R43-011-1(2)S, 34SV-R43-012-2S, and 34SV-R43-013-1(2)S] revealed that failures are rarely observed during this SR activity. For the associated surveillance tests, over the time period monitored (1994 through 1999), there were 13 performances of the associated DG OPERABILITY tests. Only one Category D safety function failure occurred. That is, during performance of 34SV-R43-012-2S, a high resistance on the breaker spring motor toggle switch caused a breaker to fail.

This failure is not indicative of a repetitive time-based failure mechanism. Therefore, no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR revises the commitment to RG 1.108 to perform the DG test at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

SR 3.8.1.14 Verify each DG:

a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power;

b. Transfers loads to offsite power source; and

c. Returns to ready-to-load operation.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR demonstrates compliance with RG 1.108, paragraph 2.a.(6). This SR ensures the manual synchronization and load transfer from the DG to each required offsite power source can be made and the DG can be returned to ready-to-load status when offsite power is restored. It also ensures the undervoltage logic is reset to allow the DG to reload if a subsequent LOSP occurs. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. During the operating cycle, the DGs are subjected to operational testing per SR 3.8.1.2 (every 31 days) and fast-start testing per SR 3.8.1.5 (every 184 days). This testing provides confidence of DG OPERABILITY and the capability to perform its intended function. The testing will also provide prompt identification of any substantial DG degradation or failure.

2. DGs are infrequently operated, usually only to satisfy a SR or to comply with LCO 3.8.1; thus, the risk of wear-related degradation is minimal.

3. DG attributes subject to degradation due to aging, such as fuel oil quality, are subject to the requirements for replenishment and testing.

4. Historical testing and surveillance testing during operation prove the ability of the diesel engines to start and operate under various load conditions.

5. Through the normal engineering design process, HNP tracks all load additions and deletions and verifies that any changes to loading are well within the capacity of the DGs. DG loading and sequencing calculations are maintained, based upon the as-built configuration, which consider the effects of planned design changes. The emergency loads used for this SR bound those for the actual installed configuration.

The portions of the test not directly associated with the functioning of the DG and breaker movement are equivalent to a LOGIC SYSTEM FUNCTIONAL TEST. For these logic tests, Ref. 1 documents the following conclusion:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is small.

A review of the surveillance test history for the associated surveillance tests revealed that failures for this safety function are rarely observed, especially considering the large number of tests performed to satisfy this SR. Over the time period monitored (1991 through 1999), there were 21 performances of the surveillance tests which satisfy this SR. Over that span only one Category D safety function failure occurred. That is, during a performance of 42SV-R43-012-2S, the 2D, the RHR pump failed to start. The associated breaker was thoroughly inspected but no problems were found. The breaker was retested satisfactorily.

This failure was not indicative of a time-based failure mechanism nor was this a repetitive failure. Therefore, no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR changes the commitment to RG 1.108 to perform the DG at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

SR 3.8.1.15 Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by:
a. Returning DG to ready-to-load operation; and
b. Automatically energizing the emergency load from offsite power.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR demonstrates operation of the test mode override. The test mode override ensures 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. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. During the operating cycle, the DGs are subjected to operational testing per SR 3.8.1.2 (every 31 days) and fast-start testing per SR 3.8.1.5 (every 184 days). This testing provides confidence of DG OPERABILITY and the capability to perform its intended function. The testing will also provide prompt identification of any substantial DG degradation or failure.

2. DGs are infrequently operated, usually only to satisfy a SR or to comply with LCO 3.8.1; thus, the risk of wear-related degradation is minimal.

3. DG attributes subject to degradation due to aging, such as fuel oil quality, are subject to the requirements for replenishment and testing.

4. Historical testing and surveillance testing during operation prove the ability of the diesel engines to start and operate under various load conditions.

5. Through the normal engineering design process, HNP tracks all load additions and deletions and verifies that any changes to loading are well within the capacity of the DGs. DG loading and sequencing calculations are maintained, based upon the as-built configuration, which consider the effects of planned design changes. The emergency loads used for this SR bound those for the actual installed configuration.

The portions of the test not directly associated with the functioning of the DG and breaker movement are equivalent to a LOGIC SYSTEM FUNCTIONAL TEST. For these logic tests, Ref. 1 documents the following conclusion:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is small.

A review of the surveillance test history for the associated surveillance tests revealed that failures for this safety function are rarely observed, especially considering the large number of tests performed to satisfy this SR. Over the time period monitored (1991 through 1999), there were 21 performances of the surveillance tests which satisfy this SR. Over that span only one Category D safety function failure occurred. That is, during a performance of 42SV-R43-012-2S, the 2D RHR pump failed to start. The associated breaker was thoroughly inspected but no problems were found. The breaker was retested satisfactorily.

This failure is not indicative of a time-based failure mechanism does not represent a pattern of repetitive failures. Therefore, no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR revises the commitment to RG 1.108 to perform the DG test at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

SR 3.8.1.16 Verify interval between each sequenced load block is within ± 10% of design interval for each load sequence timing device.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. Under accident conditions, loads are sequentially connected to the bus by the time delay relays. The time delay relays control the permissive and starting signals to motor breakers to prevent overloading of the bus power supply due to high motor starting currents. The 10% load sequence time tolerance ensures sufficient time exists for the bus power supply to restore frequency and voltage prior to applying the next load and safety analysis assumptions regarding ESF equipment time delays are not violated.

The portions of the test not directly associated with the functioning of the DG, breaker movement, pump start or valve movement, are equivalent to a LOGIC SYSTEM FUNCTIONAL TEST. For these logic tests, Ref. 1 documents the following conclusion:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is small.

A review of the surveillance test history was performed to validate the above conclusion. The results of this review demonstrate that no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR revises the commitment to RG 1.108 to perform the DG test at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

SR 3.8.1.17 Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal:

a. De-energization of emergency buses;

b. Load shedding from emergency buses; and

c. DG auto-starts from standby condition and:

1. Energizes permanently connected loads in ≤ 12 seconds,

2. Energizes auto-connected emergency loads through automatic load sequence timing devices,

3. Achieves steady state voltage ≥ 3740 V and ≤ 4243 V,

4. Achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and

5. Supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR demonstrates the DG operation during an LOSP actuation test signal in conjunction with an ECCS initiation signal. In lieu of actual demonstration of connection and energization of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. During the operating cycle, the DGs are subjected to operational testing per SR 3.8.1.2 (every 31 days) and fast-start testing per SR 3.8.1.5 (every 184 days). This testing provides confidence of DG OPERABILITY and the capability to perform its intended function. The testing will also provide prompt identification of any substantial DG degradation or failure.

2. DGs are infrequently operated, usually only to satisfy a SR or to comply with LCO 3.8.1; thus, the risk of wear-related degradation is minimal.

3. DG attributes subject to degradation due to aging, such as fuel oil quality, are subject to the requirements for replenishment and testing.

4. Historical testing and surveillance testing during operation prove the ability of the diesel engines to start and operate under various load conditions.

5. Through the normal engineering design process, HNP tracks all load additions and deletions and verifies that any changes to loading are well within the capacity of the DGs. DG loading and sequencing calculations are maintained, based upon the as-built configuration, which consider the effects of planned design changes. The

emergency loads used for this SR bound those for the actual installed configuration.

The portions of the test not directly associated with the functioning of the DG and breaker movement are equivalent to a LOGIC SYSTEM FUNCTIONAL TEST. For these logic tests, Ref. 1 documents the following conclusion:

> "Industry reliability studies for boiling water reactors (BWRs), prepared by the BWR Owners Group (NEDC-30936P) show that the overall safety systems' reliabilities are not dominated by the reliabilities of the logic system, but by that of the mechanical components, (e.g., pumps and valves), which are consequently tested on a more frequent basis. Since the probability of a relay or contact failure is small relative to the probability of mechanical component failure, increasing the Logic System Functional Test interval represents no significant change in the overall safety system unavailability."

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is small.

A review of the surveillance test history for the associated surveillance tests revealed that failures for this safety function are rarely observed, especially considering the large number of tests performed to satisfy this SR. Over the time period monitored (1991 through 1999), there were 21 performances of the surveillance tests that satisfy this SR. Over that span, only one Category D safety function failure occurred. During a performance of 42SV-R43-012-2S, the 2D RHR pump failed to start. The associated breaker was thoroughly inspected but no problems were found. The breaker was retested satisfactorily.

This failure was not indicative of a time-based failure mechanism nor was this a repetitive failure. Therefore, no failure will invalidate the conclusion that the effect, if any, of the change to a 24-month operating cycle on system availability is minimal.

Revision of this SR revises the commitment to RG 1.108 to perform the DG test at least once every 18 months. Multiple tests verify the OPERABILITY of the DGs for starting and operation. Reliability performance criteria ensure DGs are maintained at peak performance. The change in surveillance interval meets the intent of the RG requirement to perform the Section C.2.a.(1), (2), (3), (4), (5), (6), (7), (8), and (9), testing during plant shutdown.

TS 3.8.3 Diesel Fuel Oil and Transfer, Lube Oil, and Starting Air

As stated in the TS Bases, each DG is provided with a storage tank. The 33,320 gallons required to be maintained in each of the Unit 1 and swing DG's fuel oil tanks represent a total volume of oil, together with the volume of oil in the day tanks, sufficient to operate any two DGs at 3250 kW for a period of 7 days. In addition, it provides excess fuel to operate the other Unit's required DGs at a load sufficient to maintain power to the components, required to be OPERABLE by the Unit 1 TS, for approximately 7 days. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from storage tank to day tank by either of two transfer pumps associated with each storage tank. Valving is also available so that fuel oil can be transferred between fuel oil storage tanks and the day tanks. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve, or tank to result in the loss of more than one DG. All outside tanks, pumps, and piping are located underground.

For proper operation of the standby DGs, ensuring the proper quality of the stored fuel oil is necessary. The fuel oil property monitored is the total particulate concentration. Periodic testing of the stored fuel oil total particulate concentration is a method to monitor the potential degradation related to long-term storage and the potential impact to fuel-filter plugging as a result of high particulate levels.

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and remove excess heat generated by friction during operation. The onsite storage in addition to the engine oil sump is sufficient to ensure 7 days' continuous operation. This supply is sufficient to allow the operator to replenish lube oil from outside sources.

The following SR was evaluated relative to extending the testing intervals. This SR ensures the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.8.3.7 Verify each Unit 1 (Unit 2) and swing DG fuel oil transfer subsystem operates to manually transfer fuel from the associated fuel oil storage tank to the day tank of each required DG.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. This SR demonstrates that each required Unit 1 (Unit 2) and swing DG fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to each required DG's day tank. It is required to support continuous operation of standby power sources, since fuel from three storage tanks is needed to supply fuel for two DGs to meet the 7-day supply requirement discussed in the Background section of the Bases. This SR provides assurance that the fuel oil transfer pumps are OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for manual fuel transfer are OPERABLE.

Extension of the surveillance interval for this Function is acceptable for the following reasons:

1. The DG fuel oil transfer subsystems, including pumps, are tested more frequently per SR 3.8.3.5 (every 31 days) to make sure that the system operates to automatically transfer fuel oil from the storage tank to the day tank. This testing provides confidence of the fuel oil transfer subsystems OPERABILITY and the capability to perform their intended functions. The testing also provides prompt identification of any substantial degradation or failure in the subsystems.

2. The DG fuel oil transfer subsystems are designed to be highly reliable. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve, or tank to result in the loss of more than one DG. All outside tanks, pumps, and piping are located underground.

3. Operational experience shows these tests are generally passed when performed on an 18-month interval.

Therefore, based upon the above discussion, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, on system availability is minimal

TS 3.8.4 DC Sources - Operating

As stated in the TS Bases, the DC electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety related equipment. As required by 10 CFR 50, Appendix A, GDC 17, the DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The DC electrical power system also conforms to the recommendations of RG 1.6 and IEEE-308.

The station service DC power sources provide both motive and control power to selected safety related and nonsafety related equipment. Each DC subsystem is energized by one 125/250-V station service battery and three 125 V battery chargers (two normally inservice chargers and one standby charger). Each battery is exclusively associated with a single 125/250-VDC bus. Each set of battery chargers exclusively associated with a 125/250-VDC subsystem cannot be interconnected with any other 125/250-VDC subsystem. The normal and backup chargers are supplied from the same AC load groups for which the associated DC subsystem supplies the control power. The loads between the redundant 125/250-VDC subsystem are not transferable except for the ADS, the logic circuits and valves of that are normally fed from the Division 1 DC system.

The DG DC power sources provide control and instrumentation power for their respective DG and their respective offsite circuit supply breakers. In addition, DG 1A power source provides circuit breaker control power for the respective Division I loads on 4160 VAC buses 1E and 1F, and DG 1C power source provides circuit breaker control power for the respective Division II loads on 4160 VAC buses 1F and 1G. Each DG DC subsystem is energized by one 125-V battery and two 125-V battery chargers (one normally inservice charger and one standby charger).

During normal operation, the DC loads are powered from the respective station service and DG battery chargers with the batteries floating on the system. In case of loss of normal power to any battery charger, the DC loads are automatically powered from the associated battery. This will result in the discharging of the associated battery (and affect the battery cell parameters).

Each battery has adequate storage capacity to carry the required load continuously for approximately 2 hours. Each DC battery subsystem is separately housed in a ventilated room apart from its charger and distribution panels. Each subsystem is located in an area separated physically and electrically from the other subsystems to ensure a single failure in one subsystem does not cause a failure in a redundant subsystem. There is no sharing between redundant Class 1E subsystems, such as batteries, battery chargers, or distribution panels. The batteries for DC electrical power subsystems are sized to produce required capacity at 80% of nameplate rating, corresponding to warranted capacity at end of life. The minimum design voltage limit is 105/210 V.

Each battery charger of DC electrical power subsystem has ample power output capacity for the steady-state operation of connected loads required during normal operation, while at the same time maintaining a fully charged battery. Each battery charger has sufficient capacity to restore the battery from the design minimum charge to its fully charged state within 24 hours while supplying normal steady state loads.

The following SRs were evaluated relative to extending their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as failure types and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are discussed below:

SR 3.8.4.3 Verify battery cells, cell plates and racks show no visual indication of physical damage or abnormal deterioration.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The purpose of this test is to ensure the availability of necessary power to ESF systems from Class 1E battery sources. Two divisions of batteries are required for the mitigation of an accident during conditions in the event of a loss of all offsite power and a worst-case single failure. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. The design, in conjunction with TS requirements, which limit the extent and duration of Inoperable DC sources, provides substantial redundancy in DC sources.

2. Battery terminal float voltage, which verifies battery charger OPERABILITY, is monitored during the operating cycle to verify battery OPERABILITY per SR 3.8.4.1 (every 7 days) and will provide prompt identification of any substantial battery degradation or failure.

3. Batteries are not discharged except for the performance of the operating cycle test demonstrations of OPERABILITY, so there is minimal risk of age-related degradation.

4. Battery attributes subject to degradation due to aging, such as terminal corrosion or battery connection resistance are monitored per SR 3.8.4.2 (every 92 days) during the operating cycle. Therefore, any substantial degradation of the subject

components will be evident prior to the scheduled performance of these tests. Based upon the above discussion, the effect, if any, from the surveillance test interval increase on system availability will be small.

Revision 2 of NUREG 1433, Standard Technical Specifications (STS)[(6)] does not address this type of requirement, as it adds little to the effectiveness of battery maintenance. Therefore, retention and extension of this requirement are conservative relative to the approach taken in the STS for this type of test.

Based upon the above discussion, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.8.4.4 Remove visible corrosion, and verify battery cell to cell and terminal connections are coated with anti-corrosion material.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The purpose of this test is to ensure the availability of necessary power to ESF systems from Class 1E battery sources. Two divisions of batteries are required for the mitigation of an accident during conditions in the event of a loss of all offsite power and a worst-case single failure. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. The design, in conjunction with TS requirements, which limit the extent and duration of inoperable DC sources, provides substantial redundancy in DC sources.

2. Battery terminal float voltage, which verifies battery charger OPERABILITY, is monitored during the operating cycle to verify battery OPERABILITY (SR 3.8.4.1) and will provide prompt identification of any substantial battery degradation or failure.

3. Batteries are not discharged except for the performance of the operating cycle test demonstrations of OPERABILITY, so there is minimal risk of age related degradation.

4. Battery attributes subject to degradation due to aging, such as terminal corrosion or battery connection resistance are monitored per SR 3.8.4.2 (every 92 days) during the operating cycle. Therefore, any substantial degradation of the subject components will be evident prior to the scheduled performance of these tests. Based upon the above discussion, the effect, if any, from the surveillance test interval increase on system availability will be small.

Revision 2 of NUREG 1433[(6)] does not address this type of requirement, as it adds little to the effectiveness of battery maintenance. Therefore, retention and extension of this requirement is conservative relative to the approach taken in the STS for this type of test.

Based upon the above discussion, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.8.4.5 Verify battery connection resistance is within limits.
The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months, including the 25% grace period. The purpose of this test is to ensure the availability of necessary power to ESF systems from Class 1E battery sources. Two divisions of batteries are required for the mitigation of an accident during conditions in the event of an LOSP and a worst-case single failure. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. The design, in conjunction with TS requirements, which limit the extent and duration of Inoperable DC sources, provides substantial redundancy in DC sources.

2. Battery terminal float voltage, which verifies battery charger OPERABILITY, is monitored during the operating cycle to verify battery OPERABILITY per SR 3.8.4.1 (ever 7 days) and will provide prompt identification of any substantial battery degradation or failure.

3. Batteries are not discharged except for the performance of the operating cycle test demonstrations of OPERABILITY; thus, the risk of age-related degradation is minimal.

4. Battery attributes subject to degradation due to aging, such as terminal corrosion or battery connection resistance are monitored per SR 3.8.4.2 (ever 92 days) during the operating cycle. Therefore, any substantial degradation of the subject components will be evident prior to the scheduled performance of these tests. Based upon the above discussion, the effect, if any, from the surveillance test interval increase on system availability will be small.

Revision 2 of NUREG 1433[6] does not address this type of requirement, as it adds little to the effectiveness of battery maintenance. Therefore, retention and extension of this requirement is conservative relative to the approach taken in the STS for this type of test.

Based upon the above discussion, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.8.4.6 Verify each required battery charger supplies ≥ 400 amps for station service subsystems, and ≥ 100 amps for DG subsystems at ≥ 129 V for ≥ 1 hour.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months including the 25% grace period. The purpose of this test is to ensure the availability of necessary power to ESF systems from Class 1E battery sources. Two divisions of batteries are required for the mitigation of an accident during conditions in the event of an LOSP and a worst-case single failure. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. The design, in conjunction with TS requirements, which limit the extent and duration of Inoperable DC sources, provides substantial redundancy in DC sources.

2. Battery terminal float voltage, which verifies battery charger OPERABILITY, is monitored during the operating cycle to verify battery OPERABILITY per SR 3.8.4.1 (ever 7 days) and will provide prompt identification of any substantial battery degradation or failure.

3. Batteries are not discharged except for the performance of the operating cycle test demonstrations of OPERABILITY; thus, the risk of age related degradation is minimal.

4. Battery attributes subject to degradation due to aging, such as terminal corrosion or battery connection resistance are monitored per SR 3.8.4.2 (ever 92 days) during the operating cycle. Therefore, any substantial degradation of the subject components will be evident prior to the scheduled performance of these tests. Based upon the above discussion, the effect, if any, from the surveillance test interval increase on system availability will be small.

Revision 2 of NUREG 1433 [(6)] shows this requirement (SR 3.8.4.2, as shown in the STS) as with a interval of [18 months], thus allowing extension to 24 months, given proper justification. Therefore, extension of this requirement is appropriate, considering the guidance in the STS.

Based upon the above discussion, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history for the associated surveillance test (42SV-R42-007-0S) revealed that failures are rarely observed during this SR activity. For both units, over the time period monitored (1990 through 1997), only one Category D safety function failure occurred during 73 tests. That failure involved an output breaker that tripped during the testing. The breaker was subsequently replaced.

This unique failure is not indicative of a time-based failure mechanism and does not represent a pattern of repetitive failures. Therefore, no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

SR 3.8.4.7 Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.

The surveillance test interval for this SR is being increased from 18 months to 24 months, for a maximum interval of 30 months including the 25% grace period. The purpose of this test is to ensure the availability of necessary power to ESF systems from Class 1E battery sources. Two divisions of batteries are required for the mitigation of an accident during conditions in the event of a loss of all offsite power and a worst-case single failure. Extending the surveillance interval for this SR is acceptable for the following reasons:

1. The design, in conjunction with TS requirements, which limit the extent and duration of Inoperable DC sources, provides substantial redundancy in DC sources.

2. Battery terminal float voltage, which verifies battery charger OPERABILITY, is monitored during the operating cycle to verify battery OPERABILITY per SR 3.8.4.1 (ever 7 days) and will provide prompt identification of any substantial battery degradation or failure.

3. Batteries are not discharged except for the performance of the operating cycle test demonstrations of OPERABILITY, so there is minimal risk of age related degradation.

4. Battery attributes subject to degradation due to aging, such as terminal corrosion or battery connection resistance are monitored per SR 3.8.4.2 (ever 92 days) during the operating cycle. Therefore, any substantial degradation of the subject components will be evident prior to the scheduled performance of these tests. Based upon the above discussion, the effect, if any, from the surveillance test interval increase on system availability will be small.

5. Through the normal engineering design process, HNP tracks all load additions and deletions and verifies that any changes to loading are well within the capacity of the batteries. Battery loading calculations are maintained, based upon the as-built configuration, which consider the effects of planned design changes. Based upon the above discussion, the effect, if any, from the surveillance test Frequency increase on system availability will be small.

The Revision 2 of NUREG 1433[6] shows this requirement (SR 3.8.4.3, as shown in the STS) as with a interval of [18 months], thus allowing extension to 24 months, given proper justification. Therefore, extension of this requirement is appropriate, considering the guidance in the STS.

Based upon the above discussion, the impact of this proposed change, if any, on system availability is minimal.

A review of the surveillance test history demonstrates that no identified failure invalidates the conclusion that the effect, if any, of this proposed change on system availability is minimal.

Revision of this SR requires revising the commitment to RGs 1.32 and 1.129 to perform the battery service test during refueling outages, or at some other outage, with intervals between tests not to exceed 18 months. Based upon the redundant batteries available to support DC power supply needs for design bases conditions at HNP, the intent of the RG is met with the extended surveillance Frequency.

TS 5 5.7 Ventilation Filter Testing Program (VFTP)

For consistency with the treatment of other programs specified in TS 5.5, Programs and Manuals, the 18-month surveillance Frequency is being deleted from TS 5.5.7. The Frequencies for routine surveillance testing are specified and controlled in the VFTP.

REFERENCES

1. NRR Safety Evaluation Report for Peach Bottom Atomic Power Station Units 2 and 3 License Amendments 179 and 182, respectively, Operating Licenses DPR-44 and DPR-56, Dockets D50-277 and D50-278, dated August 2, 1993.

2. NRC Generic Letter 91-04, "Changes in Technical Specification Surveillance Requirements to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991.

3. "Statistical Analysis of Instrument Calibration Data - Guidelines for Instrument Calibration Extension/Reduction Programs," EPRI TR-103335.

4. "Instrumentation of Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," NRC Regulatory Guide 1.97.

5. NRC Safety Evaluation Report, "Degraded Grid Voltage Relay Setpoints," dated February 23, 1995.

6. "Standard Technical Specifications," NUREG 1433, Revision 2.

7. "Hatch Units 1 and 2 SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," NEDC-32720-P, DRF A13-00402 Class 3, March 1997.

Enclosure 5

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

Bases for Change Request for Reduced Intervals

TS 3.3.6.1 Primary Containment Isolation Instrumentation

As stated in the Technical Specifications (TS) Bases, the primary containment isolation instrumentation automatically initiates closure of appropriate primary containment isolation valves (PCIVs). The function of the PCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated design basis accidents (DBAs). Primary containment isolation within the time limits specified for the isolation valves designed to close automatically ensures the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA.

The following Surveillance Requirements (SRs) were evaluated relative to reducing their respective testing intervals. These SRs ensure the availability of safety functions that respond to plant transients and design basis events. Potential time-based considerations, such as instrument drift, failure types, and frequencies, as well as other qualitative measures of system availability, were evaluated during this effort. The evaluation results and an explanation of how the results justify the surveillance interval extension are detailed below:

Table 3.3.6.1-1 Primary Containment Isolation Instrumentation
Function 3.g HPCI System Isolation - Suppression Pool Area Temperature - Time Delay Relays

As stated in the TS Bases, the Suppression Pool Area Temperature - Time Delay Relays allow all the other systems that may be leaking into the pool area (as indicated by the high temperature) to be isolated before the HPCI System is automatically isolated. This ensures maximum HPCI System operation by preventing isolations due to leaks in other systems. These Functions are not assumed in any Final Safety Analysis Report (FSAR) transient or accident analysis.

SR 3.3.6.1.4 Perform CHANNEL CALIBRATION.
The surveillance test interval for this SR, as applied to this Function, is being reduced from 18 months to 184 days, for a maximum interval of 230 days, including the 25% grace period. The change in SR number indicates a change in Frequency, and for these devices, changes SR 3.3.6.1.4 from a CHANNEL FUNCTIONAL TEST requirement to a CHANNEL CALIBRATION requirement. The new requirement is more restrictive than the previous requirement.

Eagle Time Delay Relays perform this Function. These devices are functionally checked and the time delay is verified and, if necessary, recalibrated during the more frequent CHANNEL FUNCTIONAL TESTS per SR 3.3.6.1.4. Although the TS Frequency requirement for the functional testing is 184 days, these tests have been performed on a quarterly basis. Since the only devices that pertain to this specific TS Function are the time delay relays, and since the settings have been checked and adjusted as necessary, the CHANNEL FUNCTIONAL TESTS

have served as CHANNEL CALIBRATIONS. Since a CHANNEL CALIBRATION encompasses a CHANNEL FUNCTIONAL TEST, the CHANNEL FUNCTIONAL TEST requirement (SR 3.3.6.1.4) is replaced with a CHANNEL CALIBRATION requirement of the same Frequency.

Based upon the historical data from the functional tests, the drift associated with the time delay relays was determined, applying an HNP-specific methodology, based upon the recommendations of EPRI TR-103335.[1] The drift for the proposed 184-day surveillance interval was appropriately considered in the development of the associated plant setpoints.

Table 3.3.6.1-1 Primary Containment Isolation Instrumentation
Function 4.f RCIC System Isolation - Suppression Pool Area Temperature - Time Delay Relays

As stated in the TS Bases, the Suppression Pool Area Temperature - Time Delay Relays allow all the other systems that may be leaking into the pool area (as indicated by the high temperature) to be isolated before the RCIC System is automatically isolated. This ensures maximum RCIC System operation by preventing isolations due to leaks in other systems. These Functions are not assumed in any FSAR transient or accident analysis.

SR 3.3.6.1.4 Perform CHANNEL CALIBRATION.
The surveillance test interval for this SR, as applied to this Function, is being reduced from 18 months to 184 days, for a maximum interval of 230 days, including the 25% grace period. The change in SR number indicates a change in Frequency, and for these devices, changes SR 3.3.6.1.4 from a CHANNEL FUNCTIONAL TEST requirement to a CHANNEL CALIBRATION requirement. The new requirement is more restrictive than the previous requirement.

Eagle Time Delay Relays perform this Function. These devices are functionally checked and the time delay is verified and, if necessary, recalibrated during the more frequent CHANNEL FUNCTIONAL TESTS per SR 3.3.6.1.4. Although the TS Frequency requirement for the functional testing is 184 days, these tests have been performed on a quarterly basis. Since the only devices that pertain to this specific TS Function are the time delay relays, and since the settings have been checked and adjusted as necessary, the CHANNEL FUNCTIONAL TESTS have served as CHANNEL CALIBRATIONS. Since a CHANNEL CALIBRATION encompasses a CHANNEL FUNCTIONAL TEST, the CHANNEL FUNCTIONAL TEST requirement (SR 3.3.6.1.4) is replaced with a CHANNEL CALIBRATION of the same Frequency.

Based upon the historical data from the functional tests, the drift associated with the time delay relays was determined, applying an HNP-specific methodology, based upon the recommendations of EPRI TR-103335.[1] The drift for the proposed 184-day surveillance interval was appropriately considered in the development of the associated plant setpoints.

TS 3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

As stated in the TS Bases, the RPS Electric Power Monitoring System isolates the RPS bus from either the motor generator (MG) set or an alternate power supply in the event of overvoltage, undervoltage, or underfrequency. This system protects the loads connected to the

RPS bus against unacceptable voltage and frequency conditions, and forms an important part of the primary success path of the essential safety circuits. Some of the essential equipment powered from the RPS buses includes the RPS logic, scram solenoids, and various valve isolation logic (e.g., residual heat removal shutdown cooling).

The RPS electric power monitoring assembly detects any abnormal high or low voltage, or low frequency condition in the outputs of the two MG sets or the alternate power supply and de-energizes its respective RPS bus, thereby causing all safety functions normally powered by this bus to de-energize.

In the event of failure of an RPS Electric Power Monitoring System (e.g., both inseries electric power monitoring assemblies), the RPS loads may experience significant effects from the unregulated power supply. Deviation from the nominal conditions can potentially cause damage to the scram solenoids and other Class 1E devices. In the event of a low voltage condition for an extended period of time, the scram solenoids can chatter and potentially lose their pneumatic control capability, resulting in a loss of primary scram action. In the event of an overvoltage condition, the RPS logic relays and scram solenoids, as well as the main steam isolation valve solenoids, may experience a voltage higher than their design voltage. If the overvoltage condition persists for an extended time period, it may cause equipment degradation and the loss of plant safety functions.

SR 3.3.8.2.2 Perform CHANNEL CALIBRATION. The Allowable Values shall be:
a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds.

The surveillance test interval for this SR is being decreased from once every 18 months to once every 184 days, for a maximum interval of 230 days including the 25% grace period. ASCO overvoltage relays and Agastat time delay relays perform this Function. These devices have been calibrated at the proposed interval for some time because of component failures and reliability issues. Failure reviews performed on the procedures that implement this SR determined that the decreased calibration Frequency is appropriate for this SR. The drift for the associated devices was analyzed per an HNP-specific methodology, based upon the recommendations of EPRI TR-103335.[1] The drift for the proposed surveillance interval was appropriately considered in the development of the associated plant setpoints.

SR 3.3.8.2.2 Perform CHANNEL CALIBRATION. The Allowable Values shall be:
b. Undervoltage ≥ 108 V, with time delay set to ≤ 4 seconds.

The surveillance test interval for this SR is being decreased from once every 18 months to once every 184 days, for a maximum interval of 230 days including the 25% grace period. ASCO undervoltage time delay relays perform this Function. These devices have been calibrated at the proposed interval for some time because of component failures and reliability issues. Failure reviews performed on the procedures that implement this SR determined that the decreased calibration Frequency is appropriate for this SR. The drift for the associated devices was analyzed per an HNP-specific methodology, based upon the recommendations of EPRI TR-103335.[1] The drift for the proposed surveillance interval was appropriately considered in the development of the associated plant setpoints.

SR 3.3.8.2.2 Perform CHANNEL CALIBRATION. The Allowable Values shall be:
c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.

The surveillance test interval for this SR is being decreased from once every 18 months to once every 184 days, for a maximum interval of 230 days including the 25% grace period. ASCO underfrequency time delay relays perform this Function. These devices have been calibrated at the proposed interval for some time because of component failures and reliability issues. Failure reviews performed on the procedures that implement this SR determined that the decreased calibration Frequency is appropriate for this SR. The drift for the associated devices was analyzed per an HNP-specific methodology, based upon the recommendations of EPRI TR-103335.[1] The drift for the proposed surveillance interval was appropriately considered in the development of the associated plant setpoints.

SR 3.3.8.2.3 Perform System Functional Test.

The surveillance test interval for this SR is being decreased from once every 18 months to once every 184 days, for a maximum interval of 230 days including the 25% grace period. ASCO overvoltage relays, ASCO undervoltage time delay relays, ASCO underfrequency time delay relays, and Agastat time delay relays perform this Function. These devices have been tested at the proposed Frequency for some time because of component failures and reliability issues. Failure reviews performed on the procedures that implement this SR determined that the decreased surveillance interval is appropriate for this SR.

REFERENCES:

1. "Statistical Analysis of Instrument Calibration Data - Guidelines for Instrument Calibration Extension/Reduction Programs," EPRI TR-103335, Revision 1, October 1998.

Enclosure 6

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

10 CFR 50.92 Significant Hazards Evaluation and Environmental Assessment

A. 10 CFR 50.92 Significant Hazards Evaluation

The standards used to arrive at a determination that a request for amendment does not involve a significant hazards consideration are included in 10 CFR 50.92, which states that operation of the facility in accordance with the proposed amendment would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or

2. Create the possibility of a new or different kind of accident from any accident previously evaluated; or

3. Involve a significant reduction in a margin of safety.

Southern Nuclear Operating Company has reviewed the proposed amendment with respect to these three factors, and determined that the proposed change does not involve a significant hazard based upon the following:

1. *The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.*

a. Surveillance Testing Interval Extensions

The proposed Technical Specification (TS) change involves a change in the surveillance testing intervals to facilitate a change in the operating cycle from 18 months to 24 months. The proposed TS change does not physically impact the plant, nor does it impact any design or functional requirements of the associated systems. That is, the proposed TS change neither degrades the performance of, nor increases the challenges to, any safety systems assumed to function in the plant safety analysis. The proposed TS change neither impacts the TS SRs themselves nor the manner in which the surveillances are performed.

In addition, the proposed TS change does not introduce any accident initiators, since no accidents previously evaluated relate to the frequency of surveillance testing. Also, evaluation of the proposed TS change demonstrates that the availability of equipment and systems required to prevent or mitigate the radiological consequences of an accident is not significantly affected because of other, more frequent testing that is performed, the availability of redundant systems and equipment, or the high

reliability of the equipment. Since the impact on the systems is minimal, it is concluded the overall impact on the plant safety analysis is negligible.

Furthermore, an historical review of surveillance test results and associated maintenance records indicates there is no evidence of any failure that would invalidate the above conclusions. Therefore, the proposed TS change does not significantly increase the probability or consequences of an accident previously evaluated.

b. Allowable Value Changes

A change in Allowable Values is proposed for Table 3.3.5.1-1, Item 2.f. The proposed change is the result of application of the Hatch Instrument Setpoint Methodology using plant-specific drift values. Application of this methodology results in Allowable Values that more accurately reflect total instrumentation loop accuracy, as well as that of test equipment and calculated drift between surveillances. The proposed change will not result in any hardware changes. The instrumentation is not assumed to be an initiator of any analyzed event. Existing operating margin between plant conditions and actual plant setpoints is not significantly reduced due to the proposed changes. The role of the instrumentation is in mitigating and thereby, limiting the consequences of accidents.

The Allowable Values were developed to ensure the design and safety analysis limits are satisfied. The methodology used for the development of the Allowable Values ensures: 1) the affected instrumentation remains capable of mitigating design basis events as described in the safety analysis and 2) the results and radiological consequences described in the safety analysis remain bounding. Additionally, the proposed change does not alter the plant's ability to detect and mitigate events. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

c. Surveillance Testing Interval Reduction to Semiannual

The proposed TS change involves a reduction in the surveillance testing interval from 18 months to 184 days for the instrumentation associated with Table 3.3.8.2-1. The shorter intervals are based upon the plant-specific results of a review of the surveillance test history for the devices. The implementing procedures for these SRs have been performed on a 184-day interval for a number of years, and this change more accurately reflects actual plant maintenance practices. The proposed, more restrictive TS change does not physically impact the plant, nor does it impact any design or functional requirements of the associated systems. That is, the proposed TS change neither degrades the performance of, nor increases the challenges to, any safety systems assumed to function in the safety analysis. This

proposed TS change neither impacts the TS SRs themselves nor the manner in which in which the surveillances are performed.

In addition, the proposed TS change does not introduce any accident initiators, since no accidents previously evaluated relate to the frequency of surveillance testing. The proposed TS intervals demonstrate that the equipment and systems required to prevent or mitigate the radiological consequences of an accident are continuing to meet the assumptions of the setpoint evaluation on a more frequent basis. Since the impact on the systems is minimal, and the assumptions of the safety analyses are maintained, it is concluded the overall impact on the plant safety analysis is negligible.

Furthermore, setpoint drift evaluations prepared for the subject instrumentation show that the existing Allowable Values are acceptable without change. Therefore, the proposed TS change does not significantly increase the probability or consequences of an accident previously evaluated.

d. Change of CHANNEL CALIBRATION to CHANNEL FUNCTIONAL TEST for Float Switches

The proposed TS change involves a change in the SRs from CHANNEL CALIBRATIONS to CHANNEL FUNCTIONAL TESTS for float switches used in Table 3.3.1.1-1, Item 7.b; Table 3.3.5.1-1, Item 3.d; and Table 3.3.5.2-1, Items 3 and 4. The float switches are mechanical devices that require mechanical setting at the proper level only. Because the devices cannot be significantly adjusted without a physical change in the location of the installation, the CHANNEL FUNCTIONAL TEST provides all the functionality of a CHANNEL CALIBRATION for this type of device. Therefore, the change in type of SR does not impact the actual testing requirements for the subject devices.

The proposed TS change does not physically impact the plant, nor does it impact any design or functional requirements of the associated systems. That is, the proposed TS change neither degrades the performance of, nor increases the challenges to, any safety systems assumed to function in the safety analysis. The proposed TS change does not impact the manner in which the surveillances are performed.

In addition, the proposed TS change does not introduce any accident initiators, since the same functional requirements exist with the proposed change. Also, evaluation of the proposed TS change demonstrates the availability of equipment and systems required to prevent or mitigate the radiological consequences of an accident is not significantly affected because of the availability of redundant systems and equipment and the high

reliability of the equipment. Since the impact on the systems is minimal, it is concluded the overall impact on the plant safety analysis is negligible.

Furthermore, an historical review of surveillance test results and associated maintenance records indicated that there was no evidence of any failures that would invalidate the above conclusions. Therefore, the proposed TS change does not significantly increase the probability or consequences of an accident previously evaluated.

2. *The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.*

   a. Surveillance Testing Interval Extensions

   The proposed TS change involves a change in the surveillance testing intervals to facilitate a change in the operating cycle length. The proposed TS change does not introduce any failure mechanisms of a different type than those previously evaluated, since there are no physical changes being made to the facility. No new or different equipment is being installed. No installed equipment is being operated in a different manner. As a result, no new failure modes are introduced. In addition, the SRs themselves, and the manner in which surveillance tests are performed, remain unchanged.

   Furthermore, an historical review of surveillance test results and associated maintenance records indicate there is no evidence of any failure that would invalidate the above conclusions. Therefore, the proposed TS change does not create the possibility of a new or different kind of accident from any previously evaluated.

   b. Allowable Value Changes

   The proposed change in Allowable Values is the result of application of the Instrument Setpoint Methodology using plant-specific drift values and does not create the possibility of a new or different kind of accident from any accident previously evaluated. This is based upon the fact that the method and manner of plant operation are unchanged.

   The use of the proposed Allowable Values does not impact safe operation of the plant in that the safety analysis limits are maintained. The proposed change in Allowable Values involves no system additions or physical modifications to plant systems. The Allowable Values are revised to ensure the affected instrumentation remains capable of mitigating accidents and transients. Plant equipment will not be operated in a manner different from previous operation, except that setpoints may be changed. Since operational methods remain unchanged and the operating parameters were evaluated to maintain the plant within existing design basis criteria, no different type of failure or accident is created.

c. Surveillance Testing Interval Reductions to Semiannual

The proposed TS change involves a change in the surveillance testing interval due to the review of the surveillance test history of the subject devices. Also, the semiannual tests reflect current HNP calibration practices. The proposed TS change does not introduce any failure mechanism of a different type than those previously evaluated, since the proposed change makes no physical changes to the plant. No new or different equipment is being installed. No installed equipment is being operated in a different manner.

Furthermore, an historical review of surveillance test results and associated maintenance records indicates there is no evidence of any failure that would invalidate the above conclusions. Therefore, the proposed TS change does not create the possibility of a new or different kind of accident from any previously evaluated.

d. Change of CHANNEL CALIBRATION to CHANNEL FUNCTIONAL TEST for Float Switches

The proposed TS change does not impact the actual testing requirements for the subject devices. The proposed TS change does not introduce any failure mechanism of a different type than those previously evaluated, since the proposed change makes no physical changes to the plant. No new or different equipment is being installed. No installed equipment is being operated in a different manner. As a result, no new failure mode is being introduced. In addition, the SRs themselves, and the manner in which surveillance tests are performed, remain unchanged.

Furthermore, an historical review of surveillance test results and associated maintenance records indicates there is no evidence of any failure that would invalidate the above conclusions. Therefore, the proposed TS change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. *The proposed amendment will not involve a significant reduction in a margin of safety.*

a. Surveillance Testing Interval Extensions

Although the proposed TS change results in changes in the interval between surveillance tests, the impact, if any, on system availability is minimal, based upon other, more frequent testing that is performed, the existence of redundant systems and equipment, or overall system reliability. Evaluations show there is no evidence of any time-dependent failure that would impact the system availability.

The proposed change does not significantly impact the condition or performance of structures, systems, and components relied upon for accident mitigation. The proposed change does not significantly impact any safety analysis assumptions or results. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

b. Allowable Value Changes

The proposed change does not involve a reduction in a margin of safety. The proposed change was developed using a methodology to ensure safety analysis limits are not exceeded. As such, this proposed change does not involve a significant reduction in a margin of safety.

c. Surveillance Testing Interval Reductions to Semiannual

The proposed TS change results in a shorter interval between surveillance tests to ensure the assumptions of the safety analysis are maintained. The impact, if any, on system availability is minimal, as a result of the more frequent testing that is performed. The proposed change does not significantly impact the condition or performance of structures, systems, and components relied upon for accident mitigation. The proposed change does not significantly impact any safety analysis assumptions or results. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

d. Change of CHANNEL CALIBRATION to CHANNEL FUNCTIONAL TEST for Float Switches

The proposed TS change does not impact the actual testing requirements for the subject devices. The impact, if any, on system availability due to this change is minimal, based upon the existence of redundant systems and equipment and overall system reliability.

An historical review of surveillance test results and associated maintenance records indicates there is no evidence of any failure that would invalidate the above conclusions. The proposed change does not significantly impact the condition or performance of structures, systems, and components relied upon for accident mitigation. The proposed change does not significantly impact any safety analysis assumptions or results. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

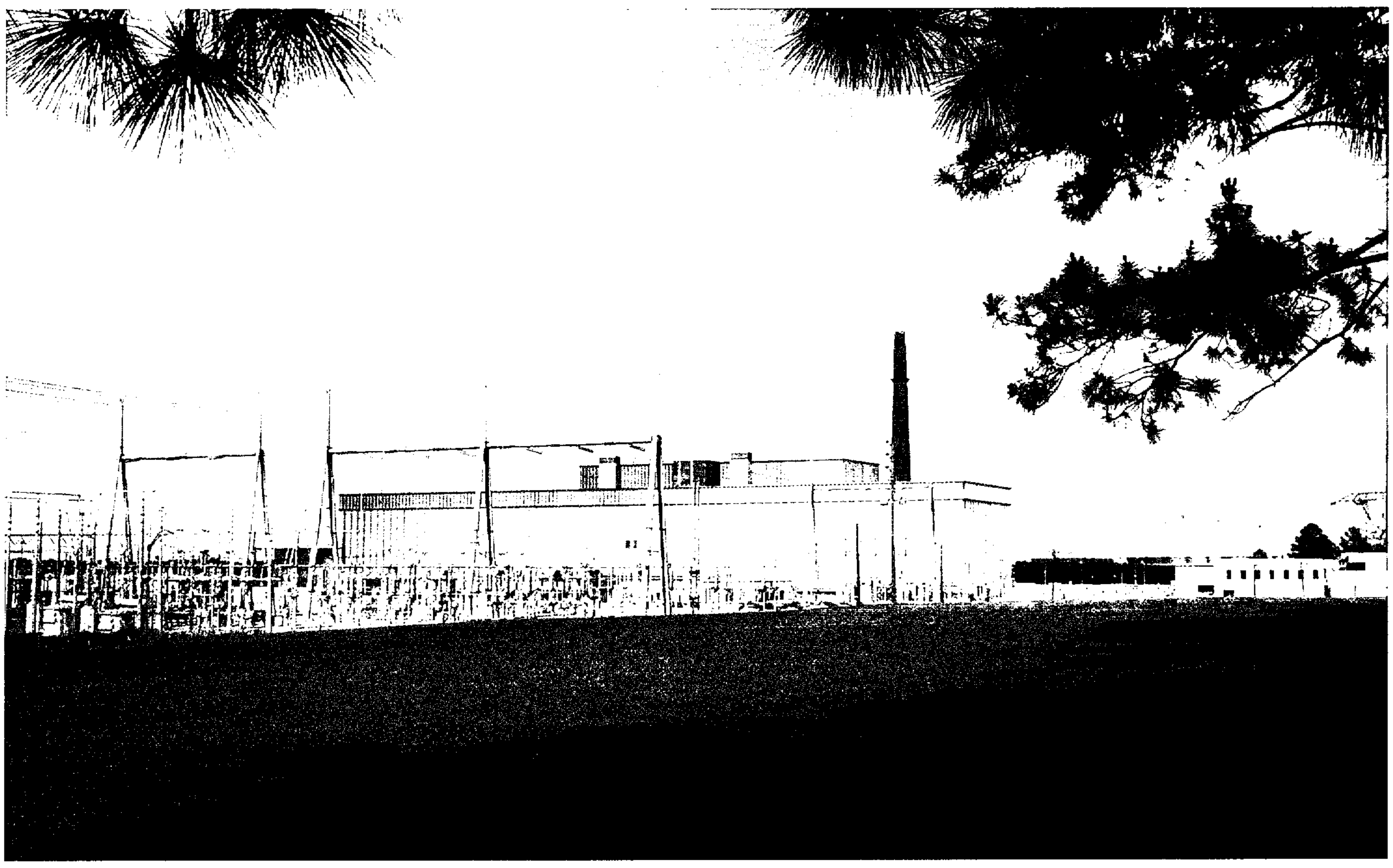
B. Environmental Assessment

The proposed TS changes were reviewed for environmental considerations against the criteria set forth in 10 CFR 51.22. Based upon the results of this review, Southern Nuclear Operating Company has determined that the proposed TS change revises a requirement with respect to the installation or use of a facility component located within the restricted area, as defined in 10 CFR 20 or revises an inspection or SR. However, the proposed TS change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) as follows:

1. The amendment involves no significant hazards consideration.
2. There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.
3. A significant increase in individual or cumulative occupational radiation exposure.

Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed TS amendment is not required.

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



Volume 2

Enclosures 7 through 10

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Enclosure 7

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

Technical Specifications Page Change Instructions

Unit 1

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3.3-5	Replace
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3.3-12	Replace
3.3-17	Replace
3.3-18	Replace
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3.3-26	Replace
3.3-29	Replace
3.3-32	Replace
3.3-40	Replace
3.3-42	Replace
3.3-49	Replace
3.3-54	Replace
3.3-57	Replace
3.3-61	Replace
3.3-65	Replace
3.3-68	Replace
3.3-74	Replace
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3.5-6	Replace
3.5-10	Replace
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3.5-13	Replace
3.6-2	Replace
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Unit 1 (Continued)

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3.8-10	Replace
3.8-11	Replace
3.8-12	Replace
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3.8-14	Replace
3.8-15	Replace
3.8-16	Replace
3.8-17	Replace
3.8-18	Replace
3.8-27	Replace
3.8-30	Replace
3.8-31	Replace
5.0-11	Replace

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.5	Verify the concentration of sodium pentaborate in solution is within the Region A limits of Figure 3.1.7-1.	31 days AND Once within 24 hours after water or sodium pentaborate is added to solution AND Once within 24 hours after solution temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.6	Verify each SLC subsystem manual and power operated valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position.	31 days
SR 3.1.7.7	Verify each pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1232 psig.	In accordance with the Inservice Testing Program
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	24 months on a STAGGERED TEST BASIS

(continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	24 months <u>AND</u> Once within 24 hours after pump suction piping temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.10	Verify sodium pentaborate enrichment is $\geq$ 60.0 atom percent B-10.	Prior to addition to SLC tank

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	-------------------NOTE------------------- Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2. -- Verify each SDV vent and drain valve is open.	31 days
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	92 days
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 45 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.7	------------------NOTE------------------ Only required to be met during entry into MODE 2 from MODE 1. -- Verify the IRM and APRM channels overlap.	7 days
SR 3.3.1.1.8	Calibrate the local power range monitors.	1000 effective full power hours
SR 3.3.1.1.9	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.1.1.10	------------------NOTE------------------ For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. -- Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.1.1.11	Verify Turbine Stop Valve — Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure — Low Functions are not bypassed when THERMAL POWER is ≥ 28% RTP.	24 months
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.13	-------------------NOTES------------------ 1. Neutron detectors are excluded. 2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. -- Perform CHANNEL CALIBRATION.	24 months
SR 3.3.1.1.14	(Not used.)	
SR 3.3.1.1.15	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months
SR 3.3.1.1.16	------------------NOTE------------------- Neutron detectors are excluded. -- Verify the RPS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS
SR 3.3.1.1.17	Verify OPRM is not bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% of rated recirculation drive flow.	24 months

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitor (continued)					
e. Two-out-of-Four Voter	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.10 SR 3.3.1.1.15 SR 3.3.1.1.16	NA
f. OPRM Upscale	1	3(c)	I	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.17	NA
3. Reactor Vessel Steam Dome Pressure – High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 1085 psig
4. Reactor Vessel Water Level – Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≥ 0 inches
5. Main Steam Isolation Valve – Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 10% closed
6. Drywell Pressure – High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 1.92 psig
7. Scram Discharge Volume Water Level – High					
a. Resistance Temperature Detector	1,2	2	G	SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 71 gallons
	5(a)	2	H	SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 71 gallons
b. Float Switch	1,2	2	G	SR 3.3.1.1.12 SR 3.3.1.1.15	≤ 71 gallons
	5(a)	2	H	SR 3.3.1.1.12 SR 3.3.1.1.15	≤ 71 gallons

(continued)

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

(c) Each APRM channel provides inputs to both trip systems.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.4	------------------NOTES------------------ 1. Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. 2. Not required to be met during spiral unloading. --- Verify count rate is ≥ 3.0 cps with a signal to noise ratio ≥ 2:1.	12 hours during CORE ALTERATIONS AND 24 hours
SR 3.3.1.2.5	Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	7 days
SR 3.3.1.2.6	------------------NOTE------------------ Not required to be performed until 12 hours after IRMs on Range 2 or below. --- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	31 days
SR 3.3.1.2.7	------------------NOTES------------------ 1. Neutron detectors are excluded. 2. Not required to be performed until 12 hours after IRMs on Range 2 or below. --- Perform CHANNEL CALIBRATION.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.2	-------------------NOTE------------------- Not required to be performed until 1 hour after any control rod is withdrawn at < 10% RTP in MODE 2. -- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.3	-------------------NOTE------------------- Not required to be performed until 1 hour after THERMAL POWER is < 10% RTP in MODE 1. -- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.4	-------------------NOTE------------------- Neutron detectors are excluded. -- Verify the RBM: a. Low Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 29% and < 64% RTP. b. Intermediate Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 64% and < 84% RTP. c. High Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 84% RTP.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.5	Verify the RWM is not bypassed when THERMAL POWER is < 10% RTP.	24 months
SR 3.3.2.1.6	-------------------NOTE------------------- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. -- Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.2.1.7	-------------------NOTE------------------- Neutron detectors are excluded. -- Perform CHANNEL CALIBRATION.	24 months
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.2.2	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 56.5 inches.	24 months
SR 3.3.2.2.3	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1 Be in MODE 3.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK.	31 days
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION.	24 months

SURVEILLANCE REQUIREMENTS

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	24 months
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.2	Verify TSV — Closure and TCV Fast Closure, Trip Oil Pressure — Low Functions are not bypassed when THERMAL POWER is ≥ 28% RTP.	24 months
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: TSV — Closure: ≤ 10% closed; and TCV Fast Closure, Trip Oil Pressure — Low: ≥ 600 psig.	24 months
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months
SR 3.3.4.1.5	------------------NOTE------------------ Breaker interruption time may be assumed from the most recent performance of SR 3.3.4.1.6. -- Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS
SR 3.3.4.1.6	Determine RPT breaker interruption time.	60 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level — ATWS-RPT Level: ≥ -73 inches; and b. Reactor Steam Dome Pressure — High: ≤ 1175 psig.	24 months
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.1.3	Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
b. Drywell Pressure - High	1,2,3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
	4(a), 5(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
d. Reactor Steam Dome Pressure - Low (Recirculation Discharge Valve Permissive)	1(c),2(c), 3(c)	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 335 psig
e. Reactor Vessel Shroud Level - Level 0	1,2,3	2	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -202 inches
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay	1,2,3, 4(a), 5(a)	1 per pump	C	SR 3.3.5.1.4 SR 3.3.5.1.5	
Pumps A,B,D					≥ 9 seconds and ≤ 15 seconds
Pump C					≤ 1 second

(continued)

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

(b) Also required to initiate the associated DG and isolate the associated PSW T/B isolation valves.

(c) With associated recirculation pump discharge valve open.

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.2.3	Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.5.2.4	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

Table 3.3.6.1-1 (page 3 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCI System Isolation (continued)					
g. Suppression Pool Area Temperature – Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 16 minutes 15 seconds
h. Suppression Pool Area Differential Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 42°F
i. Emergency Area Cooler Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
4. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 306% rated steam flow
b. RCIC Steam Supply Line Pressure – Low	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 60 psig
c. RCIC Turbine Exhaust Diaphragm Pressure – High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 20 psig
d. Drywell Pressure – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig
e. RCIC Suppression Pool Ambient Area Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
f. Suppression Pool Area Temperature – Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 31 minutes 15 seconds

(continued)

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.2.4	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.3	-------------------NOTE------------------- Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment. -- Perform CHANNEL FUNCTIONAL TEST for portions of the channel inside primary containment.	92 days
SR 3.3.6.3.4	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.3.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.3.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Place the associated MCREC subsystem(s) in the pressurization mode of operation. OR B.2 Declare associated MCREC subsystem(s) inoperable.	1 hour 1 hour

SURVEILLANCE REQUIREMENTS

-----NOTE-----

When a Control Room Air Inlet Radiation—High channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other channel is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 1 mr/hour.	92 days
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	------------------NOTE------------------ Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. --- Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 108 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	184 days
SR 3.3.8.2.3	Perform a system functional test.	184 days

SURVEILLANCE REQUIREMENTS

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

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.9	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor system pressure.	24 months
SR 3.5.1.10	-------------------NOTE------------------- Vessel injection/spray may be excluded. -- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months
SR 3.5.1.11	-------------------NOTE------------------- Valve actuation may be excluded. -- Verify the ADS actuates on an actual or simulated automatic initiation signal.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.12	Verify each ADS valve relief mode actuator strokes when manually actuated.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.5	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure. SYSTEM / FLOW RATE / NO. OF PUMPS / SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF CS / ≥ 4250 gpm / 1 / ≥ 113 psig LPCI / ≥ 7700 gpm / 1 / ≥ 20 psig	In accordance with the Inservice Testing Program
SR 3.5.2.6	-------------------NOTE------------------- Vessel injection/spray may be excluded. -- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.3.3	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	92 days
SR 3.5.3.4	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.3.5	-------------------NOTE-------------------- Vessel injection may be excluded. --- Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.1	Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2	Verify drywell to suppression chamber differential pressure does not decrease at a rate > 0.25 inch water gauge per minute tested over a 10 minute period at an initial differential pressure of 1 psid.	24 months AND -----NOTE------ Only required after two consecutive tests fail and continues until two consecutive tests pass -------------- 9 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq$ 3 seconds and $\leq$ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV, excluding EFCVs, actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to restrict flow to within limits.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP system.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is $\leq$ 11.5 scfh when tested at $\geq$ 28.0 psig.	In accordance with the Primary Containment Leakage Rate Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.11	Replace the valve seat of each 18 inch purge valve having a resilient material seat.	24 months
SR 3.6.1.3.12	Cycle each 18 inch excess flow isolation damper to the fully closed and fully open position.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	Verify each LLS valve relief mode actuator strokes when manually actuated.	24 months
SR 3.6.1.6.2	-------------------NOTE------------------- Valve actuation may be excluded. -- Verify the LLS System actuates on an actual or simulated automatic initiation signal.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.3	Verify the opening setpoint of each vacuum breaker is ≤ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	------------------NOTE------------------ Not required to be met for vacuum breakers that are open during Surveillances. --- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.8.2	Perform a functional test of each required vacuum breaker.	31 days <u>AND</u> Within 12 hours after any discharge of steam to the suppression chamber from the S/RVs
SR 3.6.1.8.3	Verify the opening setpoint of each required vacuum breaker is $\leq$ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.3	-------------------NOTE------------------- The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. -- Verify required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch of vacuum water gauge in ≤ 120 seconds.	24 months on a STAGGERED TEST BASIS
SR 3.6.4.1.4	-------------------NOTE------------------- The number of SGT subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. -- Verify required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 4000 cfm for each subsystem.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	-------------------NOTES------------------- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for SCIVs that are open under administrative controls. --- Verify each secondary containment isolation manual valve and blind flange that is required to be closed during accident conditions is closed.	31 days
SR 3.6.4.2.2	Verify the isolation time of each power operated and each automatic SCIV is within limits.	92 days
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each required SGT subsystem for ≥ 10 continuous hours with heaters operating.	31 days
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each required SGT subsystem actuates on an actual or simulated initiation signal.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.2.2	-------------------NOTE------------------- Isolation of flow to individual components or systems does not render PSW System inoperable. -- Verify each PSW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.2.3	Verify each PSW subsystem actuates on an actual or simulated initiation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify each DG 1B SSW System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.3.2	Verify the DG 1B SSW System pump starts automatically when DG 1B starts and energizes the respective bus.	24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two MCREC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	------------NOTE------------ LCO 3.0.3 is not applicable. ----------------------------	
	E.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	E.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	E.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each MCREC subsystem ≥ 15 minutes.	31 days
SR 3.7.4.2	Perform required MCREC filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify each MCREC subsystem actuates on an actual or simulated initiation signal.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.4.4	Verify each MCREC subsystem can maintain a positive pressure of ≥ 0.1 inches water gauge relative to the turbine building during the pressurization mode of operation at a subsystem flow rate of ≤ 2750 cfm and an outside air flow rate ≤ 400 cfm.	24 months on a STAGGERED TEST BASIS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Three control room AC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	------------NOTE------------ LCO 3.0.3 is not applicable. ----------------------------	
	G.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	G.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	G.3 Initiate actions to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.7.2	Perform a system functional test.	24 months
SR 3.7.7.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.6	-------------------NOTE-------------------- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	24 months
SR 3.8.1.7	-------------------NOTES------------------- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 1 controls. Credit may be taken for unplanned events that satisfy this SR. 2. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. --- Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 65.5 Hz; and b. Within 3 seconds following load rejection, the voltage is ≥ 3740 V and ≤ 4580 V.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	-------------------NOTES------------------- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 1 controls. Credit may be taken for unplanned events that satisfy this SR. 2. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. -- Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	------------------NOTES------------------ 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. Energizes permanently connected loads in ≤ 12 seconds, 2. Energizes auto-connected shutdown loads through automatic load sequence timing devices, 3. Maintains steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ---	
	Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In ≤ 12 seconds after auto-start achieves voltage ≥ 3740 V, and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V; b. In ≤ 12 seconds after auto-start achieves frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and c. Operates for ≥ 5 minutes.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. -- Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ECCS initiation signal except: a. Engine overspeed; b. Generator differential current; and c. Low lube oil pressure.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------NOTES------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2, unless the other two DGs are OPERABLE. If either of the other two DGs becomes inoperable, this surveillance shall be suspended. Credit may be taken for unplanned events that satisfy this SR. 3. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 4. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. ---	
	Verify each DG operating at a power factor $\leq$ 0.88 operates for $\geq$ 24 hours: a. For $\geq$ 2 hours loaded $\geq$ 3000 kW; and b. For the remaining hours of the test loaded $\geq$ 2775 kW and $\leq$ 2825 kW.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	-------------------NOTES------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 2565 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. --- Verify each DG starts and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	24 months
SR 3.8.1.14	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	-------------------NOTE-------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power.	24 months
SR 3.8.1.16	------------------NOTE--------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify interval between each sequenced load block is within ± 10% of design interval for each load sequence timing device.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.17	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. Energizes permanently connected loads in ≤ 12 seconds, 2. Energizes auto-connected emergency loads through automatic load sequence timing devices, 3. Achieves steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	 24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each Unit 1 and swing DG fuel oil storage tank contains ≥ 33,320 gallons of fuel.	31 days
SR 3.8.3.2	Verify each required DG lube oil inventory is ≥ 400 gallons.	31 days
SR 3.8.3.3	Verify fuel oil total particulate concentration of Unit 1 and swing DG stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each required DG air start receiver pressure is ≥ 225 psig.	31 days
SR 3.8.3.5	Verify each Unit 1 and swing DG fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	31 days
SR 3.8.3.6	Check for and remove accumulated water from each Unit 1 and swing DG fuel oil storage tank.	184 days
SR 3.8.3.7	Verify each Unit 1 and swing DG fuel oil transfer subsystem operates to manually transfer fuel from the associated fuel oil storage tank to the day tank of each required DG.	24 months

SURVEILLANCE REQUIREMENTS

-----NOTE-----
SR 3.8.4.1 through SR 3.8.4.8 are applicable only to the Unit 1 DC sources.
SR 3.8.4.9 is applicable only to the Unit 2 DC sources.

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 125 V on float charge.	7 days
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. <u>OR</u> Verify battery connection resistance is within limits.	92 days
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	24 months
SR 3.8.4.4	Remove visible corrosion, and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	24 months
SR 3.8.4.5	Verify battery connection resistance is within limits.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.6	Verify each required battery charger supplies ≥ 400 amps for station service subsystems, and ≥ 100 amps for DG subsystems at ≥ 129 V for ≥ 1 hour.	24 months
SR 3.8.4.7	-------------------NOTES------------------- 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. -- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	24 months

(continued)

5.5 Programs and Manuals (continued)

5.5.6 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components including applicable supports.

a. Testing frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda are as follows:

ASME Boiler and Pressure Vessel Code and Applicable Addenda Terminology for Inservice Testing Activities	Required Frequencies for Performing Inservice Testing Activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Yearly or annually	At least once per 366 days

b. The provisions of SR 3.0.2 are applicable to the frequencies for performing inservice testing activities;

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

d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any Technical Specification.

5.5.7 Ventilation Filter Testing Program (VFTP)

The VFTP will establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in Regulatory Guide 1.52, Revision 2, Sections C.5.c and C.5.d, or: 1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, 2) following painting, fire or chemical release in any ventilation zone communicating with the system, or 3) after every 720 hours of charcoal adsorber operation.

(continued)

Unit 2

Page	Instruction
3.1-23	Replace
3.1-24	Replace
3.1-28	Replace
3.3-5	Replace
3.3-6	Replace
3.3-8	Replace
3.3-13	Replace
3.3-18	Replace
3.3-19	Replace
3.3-22	Replace
3.3-24	Replace
3.3-27	Replace
3.3-30	Replace
3.3-33	Replace
3.3-41	Replace
3.3-43	Replace
3.3-50	Replace
3.3-55	Replace
3.3-58	Replace
3.3-62	Replace
3.3-66	Replace
3.3-69	Replace
3.3-75	Replace
3.4-13	Replace
3.5-5	Replace
3.5-6	Replace
3.5-10	Replace
3.5-12	Replace
3.5-13	Replace
3.6-2	Replace
3.6-14	Replace
3.6-15	Replace
3.6-19	Replace
3.6-22	Replace
3.6-24	Replace
3.6-34	Replace
3.6-40	Replace
3.6-44	Replace
3.6-49	Replace
3.7-6	Replace
3.7-8	Replace
3.7-11	Replace

Unit 2 (Continued)

Page	Instruction
3.7-12	Replace
3.7-16	Replace
3.7-20	Replace
3.8-10	Replace
3.8-11	Replace
3.8-12	Replace
3.8-13	Replace
3.8-14	Replace
3.8-15	Replace
3.8-16	Replace
3.8-17	Replace
3.8-18	Replace
3.8-27	Replace
3.8-30	Replace
3.8-31	Replace
5.0-11	Replace

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.5	Verify the concentration of sodium pentaborate in solution is within the Region A limits of Figure 3.1.7-1.	31 days AND Once within 24 hours after water or sodium pentaborate is added to solution AND Once within 24 hours after solution temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.6	Verify each SLC subsystem manual and power operated valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position.	31 days
SR 3.1.7.7	Verify each pump develops a flow rate $\geq$ 41.2 gpm at a discharge pressure $\geq$ 1232 psig.	In accordance with the Inservice Testing Program
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	24 months on a STAGGERED TEST BASIS

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	24 months AND Once within 24 hours after pump suction piping temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 60.0 atom percent B-10.	Prior to addition to SLC tank

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	-------------------NOTE------------------- Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2. -- Verify each SDV vent and drain valve is open.	31 days
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	92 days
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 60 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.7	------------------NOTE------------------ Only required to be met during entry into MODE 2 from MODE 1. --- Verify the IRM and APRM channels overlap.	7 days
SR 3.3.1.1.8	Calibrate the local power range monitors.	1000 effective full power hours
SR 3.3.1.1.9	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.1.1.10	------------------NOTE------------------ For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. --- Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.1.1.11	Verify Turbine Stop Valve — Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure — Low Functions are not bypassed when THERMAL POWER is ≥ 28% RTP.	24 months
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.13	-------------------NOTES------------------- 1. Neutron detectors are excluded. 2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. --- Perform CHANNEL CALIBRATION.	24 months
SR 3.3.1.1.14	(Not used.)	
SR 3.3.1.1.15	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months
SR 3.3.1.1.16	-------------------NOTES------------------- 1. Neutron detectors are excluded. 2. For Functions 3 and 4, channel sensors are excluded. 3. For Function 5, "*n*" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. --- Verify the RPS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS
SR 3.3.1.1.17	Verify OPRM is not bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% of rated recirculation drive flow.	24 months

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitor (continued)					
e. Two-out-of-Four Voter	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.10 SR 3.3.1.1.15 SR 3.3.1.1.16	NA
f. OPRM Upscale	1	3[c]	I	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.17	NA
3. Reactor Vessel Steam Dome Pressure - High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.16	≤ 1085 psig
4. Reactor Vessel Water Level - Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.16	≥ 0 inches
5. Main Steam Isolation Valve - Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.16	≤ 10% closed
6. Drywell Pressure - High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 1.92 psig
7. Scram Discharge Volume Water Level - High					
a. Resistance Temperature Detector	1,2	2	G	SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 57.15 gallons
	5[a]	2	H	SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 57.15 gallons
b. Float Switch	1,2	2	G	SR 3.3.1.1.12 SR 3.3.1.1.15	≤ 57.15 gallons
	5[a]	2	H	SR 3.3.1.1.12 SR 3.3.1.1.15	≤ 57.15 gallons

(continued)

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

(c) Each APRM channel provides inputs to both trip systems.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.4	------------------NOTES------------------ 1. Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. 2. Not required to be met during spiral unloading. --- Verify count rate is ≥ 3.0 cps with a signal to noise ratio ≥ 2:1.	12 hours during CORE ALTERATIONS **AND** 24 hours
SR 3.3.1.2.5	Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	7 days
SR 3.3.1.2.6	------------------NOTE------------------ Not required to be performed until 12 hours after IRMs on Range 2 or below. --- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	31 days
SR 3.3.1.2.7	------------------NOTES------------------ 1. Neutron detectors are excluded. 2. Not required to be performed until 12 hours after IRMs on Range 2 or below. --- Perform CHANNEL CALIBRATION.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.2	------------------NOTE------------------ Not required to be performed until 1 hour after any control rod is withdrawn at < 10% RTP in MODE 2. -- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.3	------------------NOTE------------------ Not required to be performed until 1 hour after THERMAL POWER is < 10% RTP in MODE 1. -- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.4	------------------NOTE------------------ Neutron detectors are excluded. -- Verify the RBM: a. Low Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 29% and < 64% RTP. b. Intermediate Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 64% and < 84% RTP. c. High Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 84% RTP.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1.5	Verify the RWM is not bypassed when THERMAL POWER is < 10% RTP.	24 months
SR 3.3.2.1.6	-------------------NOTE------------------- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. -- Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.2.1.7	-------------------NOTE------------------- Neutron detectors are excluded. -- Perform CHANNEL CALIBRATION.	24 months
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.2.2	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 55.5 inches.	24 months
SR 3.3.2.2.3	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1 Be in MODE 3.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

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

1. These SRs apply to each Function in Table 3.3.3.1-1.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required channel(s) in the associated Function is OPERABLE.

SURVEILLANCE	FREQUENCY
SR 3.3.3.1.1 Perform CHANNEL CHECK.	31 days
SR 3.3.3.1.2 Perform CHANNEL CALIBRATION.	24 months

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	24 months
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.2	Verify TSV — Closure and TCV Fast Closure, Trip Oil Pressure — Low Functions are not bypassed when THERMAL POWER is ≥ 28% RTP.	24 months
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: TSV — Closure: ≤ 10% closed; and TCV Fast Closure, Trip Oil Pressure — Low: ≥ 600 psig.	24 months
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months
SR 3.3.4.1.5	------------------NOTE------------------ Breaker interruption time may be assumed from the most recent performance of SR 3.3.4.1.6. --- Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS
SR 3.3.4.1.6	Determine RPT breaker interruption time.	60 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level — ATWS-RPT Level: ≥ -73 inches; and b. Reactor Steam Dome Pressure — High: ≤ 1175 psig.	24 months
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.1.3	Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
b. Drywell Pressure - High	1,2,3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
	4(a), 5(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
d. Reactor Steam Dome Pressure - Low (Recirculation Discharge Valve Permissive)	1(c),2(c), 3(c)	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 335 psig
e. Reactor Vessel Shroud Level - Level 0	1,2,3	2	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -202 inches
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay	1,2,3, 4(a), 5(a)	1 per pump	C	SR 3.3.5.1.4 SR 3.3.5.1.5	
Pumps A,B,D					≥ 9 seconds and ≤ 15 seconds
Pump C					≤ 1 second

(continued)

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

(b) Also required to initiate the associated DG and isolate the associated PSW T/B isolation valves.

(c) With associated recirculation pump discharge valve open.

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.2.3	Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.5.2.4	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

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

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

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

	SURVEILLANCE	FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months
SR 3.3.6.1.7	-----------------NOTE------------------ Channel sensors are excluded. -- Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.6.1-1 (page 3 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCI System Isolation (continued)					
g. Suppression Pool Area Temperature – Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 16 minutes 15 seconds
h. Suppression Pool Area Differential Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 42°F
i. Emergency Area Cooler Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
4. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 307% rated steam flow
b. RCIC Steam Supply Line Pressure – Low	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 60 psig
c. RCIC Turbine Exhaust Diaphragm Pressure – High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 20 psig
d. Drywell Pressure – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig
e. RCIC Suppression Pool Ambient Area Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
f. Suppression Pool Area Temperature – Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 31 minutes 15 seconds

(continued)

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.2.4	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.3	-------------------NOTE------------------- Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment. --- Perform CHANNEL FUNCTIONAL TEST for portions of the channel inside primary containment.	92 days
SR 3.3.6.3.4	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.3.5	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.6.3.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Place the associated MCREC subsystem(s) in the pressurization mode of operation.	1 hour
	OR	
	B.2 Declare associated MCREC subsystem(s) inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

-------------------------------------NOTE-------------------------------------
When a Control Room Air Inlet Radiation—High channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other channel is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 1 mr/hour.	92 days
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	-----------------NOTE----------------- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. --------------------------------------- Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 108 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	184 days
SR 3.3.8.2.3	Perform a system functional test.	184 days

SURVEILLANCE REQUIREMENTS

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

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.9	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor pressure.	24 months
SR 3.5.1.10	-------------------NOTE------------------- Vessel injection/spray may be excluded. -- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months
SR 3.5.1.11	-------------------NOTE------------------- Valve actuation may be excluded. -- Verify the ADS actuates on an actual or simulated automatic initiation signal.	24 months
SR 3.5.1.12	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify each ADS valve opens when manually actuated.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.13	-------------------NOTE------------------- ECCS injection/spray initiation instrumentation response time may be assumed from established limits. -- Verify each ECCS injection/spray subsystem ECCS RESPONSE TIME is within limits.	24 months

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.2.5	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure. SYSTEM / FLOW RATE / NO. OF PUMPS / SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF CS / ≥ 4250 gpm / 1 / ≥ 113 psig LPCI / ≥ 7700 gpm / 1 / ≥ 20 psig	In accordance with the Inservice Testing Program
SR 3.5.2.6	-------------------NOTE-------------------- Vessel injection/spray may be excluded. --- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.3.3	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	92 days
SR 3.5.3.4	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.3.5	-------------------NOTE------------------- Vessel injection may be excluded. -- Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	24 months

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.1.1.1	Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2	Verify drywell to suppression chamber differential pressure does not decrease at a rate > 0.25 inch water gauge per minute tested over a 10 minute period at an initial differential pressure of 1 psid.	24 months AND -----NOTE------ Only required after two consecutive tests fail and continues until two consecutive tests pass -------------- 9 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV, excluding EFCVs, actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to restrict flow to within limits.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify the combined leakage rate for all secondary containment bypass leakage paths is ≤ 0.009 L_a when pressurized to ≥ P_a.	In accordance with the Primary Containment Leakage Rate Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.11	Verify leakage rate through each MSIV is ≤ 100 scfh, and a combined maximum pathway leakage ≤ 250 scfh for all four main steam lines, when tested at ≥ 28.8 psig. However, the leakage rate acceptance criteria for the first test following discovery of leakage through an MSIV not meeting the 100 scfh limit, shall be ≤ 11.5 scfh for that MSIV.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.12	Replace the valve seat of each 18 inch purge valve having a resilient material seat.	24 months
SR 3.6.1.3.13	Cycle each 18 inch excess flow isolation damper to the fully closed and fully open position.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	Verify each LLS valve relief mode actuator strokes when manually actuated.	24 months
SR 3.6.1.6.2	-------------------NOTE------------------- Valve actuation may be excluded. -- Verify the LLS System actuates on an actual or simulated automatic initiation signal.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.3	Verify the opening setpoint of each vacuum breaker is ≤ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	------------------NOTE------------------ Not required to be met for vacuum breakers that are open during Surveillances. -- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.8.2	Perform a functional test of each required vacuum breaker.	31 days AND Within 12 hours after any discharge of steam to the suppression chamber from the S/RVs
SR 3.6.1.8.3	Verify the opening setpoint of each required vacuum breaker is $\leq$ 0.5 psid.	24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1.1	Perform a system functional test for each primary containment hydrogen recombiner.	24 months
SR 3.6.3.1.2	Visually examine each primary containment hydrogen recombiner enclosure and verify there is no evidence of abnormal conditions.	24 months
SR 3.6.3.1.3	Perform a resistance to ground test for each heater phase.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.3	-------------------NOTE------------------- The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. -- Verify required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch of vacuum water gauge in ≤ 120 seconds.	24 months on a STAGGERED TEST BASIS
SR 3.6.4.1.4	-------------------NOTE------------------- The number of SGT subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. -- Verify required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 4000 cfm for each subsystem.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	-------------------NOTES------------------ 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for SCIVs that are open under administrative controls. -- Verify each secondary containment isolation manual valve and blind flange that is required to be closed during accident conditions is closed.	31 days
SR 3.6.4.2.2	Verify the isolation time of each power operated and each automatic SCIV is within limits.	92 days
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each required SGT subsystem for ≥ 10 continuous hours with heaters operating.	31 days
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each required SGT subsystem actuates on an actual or simulated initiation signal.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.2.2	-------------------NOTE------------------- Isolation of flow to individual components or systems does not render PSW System inoperable. -- Verify each PSW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.2.3	Verify each PSW subsystem actuates on an actual or simulated initiation signal.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify each DG 1B SSW System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.3.2	Verify the DG 1B SSW System pump starts automatically when DG 1B starts and energizes the respective bus.	24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two MCREC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	------------NOTE------------ LCO 3.0.3 is not applicable. ----------------------------	
	E.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	E.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	E.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each MCREC subsystem ≥ 15 minutes.	31 days
SR 3.7.4.2	Perform required MCREC filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify each MCREC subsystem actuates on an actual or simulated initiation signal.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.4.4	Verify each MCREC subsystem can maintain a positive pressure of ≥ 0.1 inches water gauge relative to the turbine building during the pressurization mode of operation at a subsystem flow rate of ≤ 2750 cfm and an outside air flow rate ≤ 400 cfm.	24 months on a STAGGERED TEST BASIS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Three control room AC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	-------------NOTE------------- LCO 3.0.3 is not applicable. ------------------------------	
	G.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	G.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	G.3 Initiate actions to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.7.2	Perform a system functional test.	24 months
SR 3.7.7.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	24 months

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.6	------------------NOTE------------------ This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. -- Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	 24 months
SR 3.8.1.7	------------------NOTES------------------ 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 2 controls. Credit may be taken for unplanned events that satisfy this SR. 2. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. -- Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 65.5 Hz; and b. Within 3 seconds following load rejection, the voltage is ≥ 3740 V and ≤ 4580 V.	 24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.8	-------------------NOTES------------------- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 2 controls. Credit may be taken for unplanned events that satisfy this SR. 2. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. --- Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ---	
	Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. Energizes permanently connected loads in ≤ 12 seconds, 2. Energizes auto-connected shutdown loads through automatic load sequence timing devices, 3. Maintains steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In ≤ 12 seconds after auto-start achieves voltage ≥ 3740 V, and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V; b. In ≤ 12 seconds after auto-start achieves frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and c. Operates for ≥ 5 minutes.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	------------------NOTE------------------ This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --	
	Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ECCS initiation signal except: a. Engine overspeed; b. Generator differential current; and c. Low lube oil pressure.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------NOTES------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2, unless the other two DGs are OPERABLE. If either of the other two DGs becomes inoperable, this surveillance shall be suspended. Credit may be taken for unplanned events that satisfy this SR. 3. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 4. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. ---	
	Verify each DG operating at a power factor $\leq$ 0.88 operates for $\geq$ 24 hours: a. For $\geq$ 2 hours loaded $\geq$ 3000 kW; and b. For the remaining hours of the test loaded $\geq$ 2775 kW and $\leq$ 2825 kW.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.13 -------------------NOTES------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 2565 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. --- Verify each DG starts and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	24 months
SR 3.8.1.14 -------------------NOTE------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power.	24 months
SR 3.8.1.16	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify interval between each sequenced load block is within ± 10% of design interval for each load sequence timing device.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.17	---NOTES--- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. Energizes permanently connected loads in ≤ 12 seconds, 2. Energizes auto-connected emergency loads through automatic load sequence timing devices, 3. Achieves steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each Unit 2 and swing DG fuel oil storage tank contains ≥ 33,320 gallons of fuel.	31 days
SR 3.8.3.2	Verify each required DG lube oil inventory is ≥ 400 gallons.	31 days
SR 3.8.3.3	Verify fuel oil total particulate concentration of Unit 2 and swing DG stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each required DG air start receiver pressure is ≥ 225 psig.	31 days
SR 3.8.3.5	Verify each Unit 2 and swing DG fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	31 days
SR 3.8.3.6	Check for and remove accumulated water from each Unit 2 and swing DG fuel oil storage tank.	184 days
SR 3.8.3.7	Verify each Unit 2 and swing DG fuel oil transfer subsystem operates to manually transfer fuel from the associated fuel oil storage tank to the day tank of each required DG.	24 months

SURVEILLANCE REQUIREMENTS

-----------------------------------NOTE-----------------------------------
SR 3.8.4.1 through SR 3.8.4.8 are applicable only to the Unit 2 DC sources.
SR 3.8.4.9 is applicable only to the Unit 1 DC sources.

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 125 V on float charge.	7 days
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is within limits.	92 days
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	24 months
SR 3.8.4.4	Remove visible corrosion, and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	24 months
SR 3.8.4.5	Verify battery connection resistance is within limits.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.4.6	Verify each required battery charger supplies ≥ 400 amps for station service subsystems, and ≥ 100 amps for DG subsystems at ≥ 129 V for ≥ 1 hour.	24 months
SR 3.8.4.7	-------------------NOTES------------------ 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. --- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	24 months

(continued)

5.5 Programs and Manuals (continued)

5.5.6 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components including applicable supports.

a. Testing frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda are as follows:

ASME Boiler and Pressure Vessel Code and Applicable Addenda Terminology for Inservice Testing Activities	Required Frequencies for Performing Inservice Testing Activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Yearly or annually	At least once per 366 days

b. The provisions of SR 3.0.2 are applicable to the frequencies for performing inservice testing activities;

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

d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any Technical Specification.

5.5.7 Ventilation Filter Testing Program (VFTP)

The VFTP will establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in Regulatory Guide 1.52, Revision 2, Sections C.5.c and C.5.d, or: 1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, 2) following painting, fire or chemical release in any ventilation zone communicating with the system, or 3) after every 720 hours of charcoal adsorber operation.

(continued)

Enclosure 8

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

Marked-Up Technical Specifications Pages

HL-6117

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.5	Verify the concentration of sodium pentaborate in solution is within the Region A limits of Figure 3.1.7-1.	31 days AND Once within 24 hours after water or sodium pentaborate is added to solution AND Once within 24 hours after solution temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.6	Verify each SLC subsystem manual and power operated valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position.	31 days
SR 3.1.7.7	Verify each pump develops a flow rate $\geq$ 41.2 gpm at a discharge pressure $\geq$ 1232 psig.	In accordance with the Inservice Testing Program
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	24 ~~18~~ months on a STAGGERED TEST BASIS

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	~~18~~ 24 months AND Once within 24 hours after pump suction piping temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 60.0 atom percent B-10.	Prior to addition to SLC tank

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	-------------------NOTE------------------- Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2. -- Verify each SDV vent and drain valve is open.	31 days
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	92 days
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 45 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.7	-------------------NOTE------------------- Only required to be met during entry into MODE 2 from MODE 1. -- Verify the IRM and APRM channels overlap.	7 days
SR 3.3.1.1.8	Calibrate the local power range monitors.	1000 effective full power hours
SR 3.3.1.1.9	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.1.1.10	-------------------NOTE------------------- For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. -- Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.1.1.11	Verify Turbine Stop Valve — Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure — Low Functions are not bypassed when THERMAL POWER is ≥ 28% RTP.	~~184 days~~ 24 months
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	24 ~~18~~ months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.13	-------------------NOTES------------------- 1. Neutron detectors are excluded. 2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. --- Perform CHANNEL CALIBRATION.	18 months
SR 3.3.1.1.14	(Not used.)	
SR 3.3.1.1.15	Perform LOGIC SYSTEM FUNCTIONAL TEST.	18 months
SR 3.3.1.1.16	-------------------NOTE------------------- Neutron detectors are excluded. --- Verify the RPS RESPONSE TIME is within limits.	18 months on a STAGGERED TEST BASIS
SR 3.3.1.1.17	Verify OPRM is not bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% of rated recirculation drive flow.	18 months

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Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitor (continued)					
e. Two-out-of-Four Voter	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.10 SR 3.3.1.1.15 SR 3.3.1.1.16	NA
f. OPRM Upscale	1	3(c)	I	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.17	NA
3. Reactor Vessel Steam Dome Pressure – High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 1085 psig
4. Reactor Vessel Water Level – Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≥ 0 inches
5. Main Steam Isolation Valve – Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 10% closed
6. Drywell Pressure – High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 1.92 psig
7. Scram Discharge Volume Water Level – High					
a. Resistance Temperature Detector	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 71 gallons 12
	5(a)	2	H	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 71 gallons
b. Float Switch	1,2	2	G	SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 71 gallons 12
	5(a)	2	H	SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 71 gallons

(continued)

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

(c) Each APRM channel provides inputs to both trip systems.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.4	------------------NOTES------------------ 1. Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. 2. Not required to be met during spiral unloading. --- Verify count rate is ≥ 3.0 cps with a signal to noise ratio ≥ 2:1.	12 hours during CORE ALTERATIONS AND 24 hours
SR 3.3.1.2.5	Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	7 days
SR 3.3.1.2.6	------------------NOTE------------------ Not required to be performed until 12 hours after IRMs on Range 2 or below. --- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	31 days
SR 3.3.1.2.7	------------------NOTES------------------ 1. Neutron detectors are excluded. 2. Not required to be performed until 12 hours after IRMs on Range 2 or below. --- Perform CHANNEL CALIBRATION.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.2	-------------------NOTE------------------- Not required to be performed until 1 hour after any control rod is withdrawn at < 10% RTP in MODE 2. -- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.3	-------------------NOTE------------------- Not required to be performed until 1 hour after THERMAL POWER is < 10% RTP in MODE 1. -- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.4	-------------------NOTE------------------- Neutron detectors are excluded. -- Verify the RBM: a. Low Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 29% and < 64% RTP. b. Intermediate Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 64% and < 84% RTP. c. High Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 84% RTP.	18 months 24

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.5	Verify the RWM is not bypassed when THERMAL POWER is < 10% RTP.	~~18~~ 24 months
SR 3.3.2.1.6	------------------NOTE------------------ Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. -- Perform CHANNEL FUNCTIONAL TEST.	~~18~~ 24 months
SR 3.3.2.1.7	------------------NOTE------------------ Neutron detectors are excluded. -- Perform CHANNEL CALIBRATION.	~~18~~ 24 months
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.2.2	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 56.5 inches.	~~18~~ 24 months
SR 3.3.2.2.3	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	~~18~~ 24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1 Be in MODE 3.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. These SRs apply to each Function in Table 3.3.3.1-1.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required channel(s) in the associated Function is OPERABLE.

SURVEILLANCE	FREQUENCY
SR 3.3.3.1.1 Perform CHANNEL CHECK.	31 days
SR 3.3.3.1.2 Perform CHANNEL CALIBRATION.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	~~18~~ 24 months
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.2	Verify TSV — Closure and TCV Fast Closure, Trip Oil Pressure — Low Functions are not bypassed when THERMAL POWER is ≥ 28% RTP.	~~184 days~~ 24 months
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: TSV — Closure: ≤ 10% closed; and TCV Fast Closure, Trip Oil Pressure — Low: ≥ 600 psig.	~~18~~ 24 months
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	~~18~~ 24 months
SR 3.3.4.1.5	-------------------NOTE------------------- Breaker interruption time may be assumed from the most recent performance of SR 3.3.4.1.6. -- Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.	~~18~~ 24 months on a STAGGERED TEST BASIS
SR 3.3.4.1.6	Determine RPT breaker interruption time.	60 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level — ATWS-RPT Level: ≥ -73 inches; and b. Reactor Steam Dome Pressure — High: ≤ 1175 psig.	18 months 24
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	18 months

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.1.3	Perform CHANNEL ~~CALIBRATION.~~ FUNCTIONAL TEST.	~~92 days~~ 24 months
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	~~18~~ 24 months
SR 3.3.5.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~18~~ 24 months

Table 3.3.5.1-1 (page 2 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
b. Drywell Pressure – High	1,2,3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Reactor Steam Dome Pressure – Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
	4(a), 5(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
d. Reactor Steam Dome Pressure – Low (Recirculation Discharge Valve Permissive)	1(c), 2(c), 3(c)	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 335 psig
e. Reactor Vessel Shroud Level – Level 0	1,2,3	2	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -202 inches
f. Low Pressure Coolant Injection Pump Start – Time Delay Relay	1,2,3, 4(a), 5(a)	1 per pump	C	SR 3.3.5.1.4 SR 3.3.5.1.5	
Pumps A,B,D					≥ 9 seconds and ≤ 11 seconds 15
Pump C					≤ 1 second

(continued)

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

(b) Also required to initiate the associated DG and isolate the associated PSW T/B isolation valves.

(c) With associated recirculation pump discharge valve open.

SURVEILLANCE REQUIREMENTS

---NOTES---

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.2.3	Perform CHANNEL ~~CALIBRATION.~~ FUNCTIONAL TEST.	~~92 days~~ 24 months
SR 3.3.5.2.4	Perform CHANNEL CALIBRATION.	~~18~~ 24 months
SR 3.3.5.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.1.4	Perform CHANNEL ~~FUNCTIONAL TEST.~~ CALIBRATION	184 days
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	~~18~~ 24 months
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~18~~ 24 months

Table 3.3.6.1-1 (page 3 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCI System Isolation (continued)					
g. Suppression Pool Area Temperature – Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.4 ~~SR 3.3.6.1.5~~ SR 3.3.6.1.6	≤ 16 minutes 15 seconds
h. Suppression Pool Area Differential Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 42°F
i. Emergency Area Cooler Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
4. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 306% rated steam flow
b. RCIC Steam Supply Line Pressure – Low	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 60 psig
c. RCIC Turbine Exhaust Diaphragm Pressure – High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 20 psig
d. Drywell Pressure – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig
e. RCIC Suppression Pool Ambient Area Temperature – High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
f. Suppression Pool Area Temperature – Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.4 ~~SR 3.3.6.1.5~~ SR 3.3.6.1.6	≤ 31 minutes 15 seconds

(continued)

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.2.4	Perform CHANNEL CALIBRATION.	~~18~~ 24 months
SR 3.3.6.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.3	-------------------NOTE------------------- Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment. -- Perform CHANNEL FUNCTIONAL TEST for portions of the channel inside primary containment.	92 days
SR 3.3.6.3.4	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.3.5	Perform CHANNEL CALIBRATION.	~~18~~ 24 months
SR 3.3.6.3.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~18~~ 24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1	Place the associated MCREC subsystem(s) in the pressurization mode of operation.	1 hour
	<u>OR</u>		
	B.2	Declare associated MCREC subsystem(s) inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

-----NOTE-----
When a Control Room Air Inlet Radiation—High channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other channel is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	31 days
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 1 mr/hour.	92 days
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	-----------------NOTE----------------- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. -------------------------------------- Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 108 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	~~18 months~~ 184 days
SR 3.3.8.2.3	Perform a system functional test.	~~18 months~~ 184 days

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Perform a CHANNEL CHECK of required primary containment atmospheric monitoring system.	12 hours
SR 3.4.5.2	Perform a CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	31 days
SR 3.4.5.3	Perform a CHANNEL CALIBRATION of required leakage detection instrumentation.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.9	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor system pressure.	~~18~~ 24 months
SR 3.5.1.10	-------------------NOTE------------------- Vessel injection/spray may be excluded. -- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	~~18~~ 24 months
SR 3.5.1.11	-------------------NOTE------------------- Valve actuation may be excluded. -- Verify the ADS actuates on an actual or simulated automatic initiation signal.	~~18~~ 24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.12	Verify each ADS valve relief mode actuator strokes when manually actuated.	24 ~~18~~ months

SURVEILLANCE REQUIREMENTS (continued)

<table>
<tr><th colspan="2">SURVEILLANCE</th><th>FREQUENCY</th></tr>
<tr><td>SR 3.5.2.5</td><td>Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure.
<table>
<tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO. OF PUMPS</th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</th></tr>
<tr><td>CS</td><td>≥ 4250 gpm</td><td>1</td><td>≥ 113 psig</td></tr>
<tr><td>LPCI</td><td>≥ 7700 gpm</td><td>1</td><td>≥ 20 psig</td></tr>
</table></td><td>In accordance with the Inservice Testing Program</td></tr>
<tr><td>SR 3.5.2.6</td><td>--------------------NOTE--------------------
Vessel injection/spray may be excluded.

Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</td><td>~~18~~ 24 months</td></tr>
</table>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.3.3	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	92 days
SR 3.5.3.4	-------------------NOTE------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	24 ~~18~~ months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.3.5	-------------------NOTE------------------- Vessel injection may be excluded. -- Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.1	Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2	Verify drywell to suppression chamber differential pressure does not decrease at a rate > 0.25 inch water gauge per minute tested over a 10 minute period at an initial differential pressure of 1 psid.	24 ~~18~~ months AND -----NOTE------ Only required after two consecutive tests fail and continues until two consecutive tests pass -------------- 9 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV, excluding EFCVs, actuates to the isolation position on an actual or simulated isolation signal.	~~18~~ 24 months
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to restrict flow to within limits.	~~18~~ 24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP system.	~~18~~ 24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is ≤ 11.5 scfh when tested at ≥ 28.0 psig.	In accordance with the Primary Containment Leakage Rate Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.11	Replace the valve seat of each 18 inch purge valve having a resilient material seat.	~~18~~ 24 months
SR 3.6.1.3.12	Cycle each 18 inch excess flow isolation damper to the fully closed and fully open position.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.1.6.1	Verify each LLS valve relief mode actuator strokes when manually actuated.	~~18~~ 24 months
SR 3.6.1.6.2	-------------------NOTE------------------- Valve actuation may be excluded. -- Verify the LLS System actuates on an actual or simulated automatic initiation signal.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.3	Verify the opening setpoint of each vacuum breaker is ≤ 0.5 psid.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	------------------NOTE------------------ Not required to be met for vacuum breakers that are open during Surveillances. -- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.8.2	Perform a functional test of each required vacuum breaker.	31 days AND Within 12 hours after any discharge of steam to the suppression chamber from the S/RVs
SR 3.6.1.8.3	Verify the opening setpoint of each required vacuum breaker is ≤ 0.5 psid.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.3	-------------------NOTE------------------- The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. -- Verify required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch of vacuum water gauge in ≤ 120 seconds.	24 18 months on a STAGGERED TEST BASIS
SR 3.6.4.1.4	-------------------NOTE------------------- The number of SGT subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. -- Verify required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 4000 cfm for each subsystem.	24 18 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	------------------NOTES------------------ 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for SCIVs that are open under administrative controls. --- Verify each secondary containment isolation manual valve and blind flange that is required to be closed during accident conditions is closed.	31 days
SR 3.6.4.2.2	Verify the isolation time of each power operated and each automatic SCIV is within limits.	92 days
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each required SGT subsystem for ≥ 10 continuous hours with heaters operating.	31 days
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each required SGT subsystem actuates on an actual or simulated initiation signal.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.2.2	-------------------NOTE-------------------- Isolation of flow to individual components or systems does not render PSW System inoperable. -- Verify each PSW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.2.3	Verify each PSW subsystem actuates on an actual or simulated initiation signal.	24 ~~18~~ months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify each DG 1B SSW System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.3.2	Verify the DG 1B SSW System pump starts automatically when DG 1B starts and energizes the respective bus.	~~18~~ 24 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two MCREC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	------------NOTE------------ LCO 3.0.3 is not applicable. ----------------------------	
	E.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	E.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	E.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each MCREC subsystem ≥ 15 minutes.	31 days
SR 3.7.4.2	Perform required MCREC filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify each MCREC subsystem actuates on an actual or simulated initiation signal.	24 18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.4.4	Verify each MCREC subsystem can maintain a positive pressure of ≥ 0.1 inches water gauge relative to the turbine building during the pressurization mode of operation at a subsystem flow rate of ≤ 2750 cfm and an outside air flow rate ≤ 400 cfm.	24 ~~18~~ months on a STAGGERED TEST BASIS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Three control room AC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	------------NOTE------------ LCO 3.0.3 is not applicable. ----------------------------	
	G.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	
	G.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	G.3 Initiate actions to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.5.1 Verify each control room AC subsystem has the capability to remove the assumed heat load.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.7.2	Perform a system functional test.	~~18~~ 24 months
SR 3.7.7.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.6	------------------NOTE------------------ This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. -- Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	18 months 24
SR 3.8.1.7	------------------NOTES------------------ 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 1 controls. Credit may be taken for unplanned events that satisfy this SR. 2. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. -- Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 65.5 Hz; and b. Within 3 seconds following load rejection, the voltage is ≥ 3740 V and ≤ 4580 V.	18 months 24

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	-------------------NOTES------------------- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 1 controls. Credit may be taken for unplanned events that satisfy this SR. 2. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. -- Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW.	24 ~~18~~ months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. Energizes permanently connected loads in ≤ 12 seconds, 2. Energizes auto-connected shutdown loads through automatic load sequence timing devices, 3. Maintains steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	24 ~~18~~ months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.10	------------------NOTES------------------ 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In ≤ 12 seconds after auto-start achieves voltage ≥ 3740 V, and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V; b. In ≤ 12 seconds after auto-start achieves frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and c. Operates for ≥ 5 minutes.	24 ~~18~~ months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. -- Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ECCS initiation signal except: a. Engine overspeed; b. Generator differential current; and c. Low lube oil pressure.	24 ~~18~~ months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------NOTES------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2, unless the other two DGs are OPERABLE. If either of the other two DGs becomes inoperable, this surveillance shall be suspended. Credit may be taken for unplanned events that satisfy this SR. 3. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 4. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. -- Verify each DG operating at a power factor ≤ 0.88 operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 3000 kW; and b. For the remaining hours of the test loaded ≥ 2775 kW and ≤ 2825 kW.	~~18~~ 24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	------------------NOTES------------------ 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 2565 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. --- Verify each DG starts and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	24 ~~18~~ months
SR 3.8.1.14	------------------NOTE------------------ This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	24 ~~18~~ months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.15	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. -- Verify with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power.	24 ~~18~~ months
SR 3.8.1.16	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. -- Verify interval between each sequenced load block is within ± 10% of design interval for each load sequence timing device.	24 ~~18~~ months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.17	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. -- Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. Energizes permanently connected loads in ≤ 12 seconds, 2. Energizes auto-connected emergency loads through automatic load sequence timing devices, 3. Achieves steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	~~18~~ 24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each Unit 1 and swing DG fuel oil storage tank contains ≥ 33,320 gallons of fuel.	31 days
SR 3.8.3.2	Verify each required DG lube oil inventory is ≥ 400 gallons.	31 days
SR 3.8.3.3	Verify fuel oil total particulate concentration of Unit 1 and swing DG stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each required DG air start receiver pressure is ≥ 225 psig.	31 days
SR 3.8.3.5	Verify each Unit 1 and swing DG fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	31 days
SR 3.8.3.6	Check for and remove accumulated water from each Unit 1 and swing DG fuel oil storage tank.	184 days
SR 3.8.3.7	Verify each Unit 1 and swing DG fuel oil transfer subsystem operates to manually transfer fuel from the associated fuel oil storage tank to the day tank of each required DG.	~~18~~ 24 months

SURVEILLANCE REQUIREMENTS

-----------------------------------NOTE-----------------------------------
SR 3.8.4.1 through SR 3.8.4.8 are applicable only to the Unit 1 DC sources.
SR 3.8.4.9 is applicable only to the Unit 2 DC sources.

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 125 V on float charge.	7 days
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. <u>OR</u> Verify battery connection resistance is within limits.	92 days
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	~~18~~ 24 months
SR 3.8.4.4	Remove visible corrosion, and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	~~18~~ 24 months
SR 3.8.4.5	Verify battery connection resistance is within limits.	~~18~~ 24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.6	Verify each required battery charger supplies ≥ 400 amps for station service subsystems, and ≥ 100 amps for DG subsystems at ≥ 129 V for ≥ 1 hour.	~~18~~ 24 months
SR 3.8.4.7	-------------------NOTES------------------- 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. -- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	~~18~~ 24 months

(continued)

5.5 Programs and Manuals (continued)

5.5.6 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components including applicable supports.

a. Testing frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda are as follows:

ASME Boiler and Pressure Vessel Code and Applicable Addenda Terminology for Inservice Testing Activities	Required Frequencies for Performing Inservice Testing Activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Yearly or annually	At least once per 366 days

b. The provisions of SR 3.0.2 are applicable to the frequencies for performing inservice testing activities;

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

d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any Technical Specification.

5.5.7 Ventilation Filter Testing Program (VFTP)

The VFTP will establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in Regulatory Guide 1.52, Revision 2, Sections C.5.c and C.5.d ~~and at least once per 18 months~~, or: 1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, 2) following painting, fire or chemical release in any ventilation zone communicating with the system, or 3) after every 720 hours of charcoal adsorber operation.

(continued)
