ACTION (Continued):

h. With one automatic load sequencer inoperable:

1. Restore the automatic load sequencer to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

at the frequency specified in the Surveillance Frequency Control Program

a. Determined OPERABLE ~~at least once per 7 days~~ by verifying correct breaker alignment and power availability, and

b. Demonstrated OPERABLE ~~at least once per 18 months~~ by manually transferring the onsite Class 1E power supply from the unit auxiliary transformer to the startup auxiliary transformer.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

a. ~~At least once per 31 days on a STAGGERED TEST BASIS~~ by:

At the frequency specified in the Surveillance Frequency Control Program

1. Verifying the fuel level in the day tank,
2. Verifying the fuel level in the main fuel oil storage tank,
3. Verifying the fuel oil transfer pump can be started and transfers fuel from the storage system to the day tank,
4. Verifying the diesel generator can start** and accelerate ## to synchronous speed (450 rpm) with generator voltage and frequency 6900 ± 690 volts and 60 ± 1.2 Hz,
5. Verifying the diesel generator is synchronized, gradually loaded** to an indicated 6200-6400 kW*** and operates for at least 60 minutes,
6. Verifying the pressure in at least one air start receiver to be greater than or equal to 190 psig, and
7. Verifying the diesel generator is aligned to provide standby power to the associated emergency buses.

**This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable, regarding loading recommendations.

***This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing or momentary variations due to changing bus loads shall not invalidate the test.

The voltage and frequency conditions shall be met within 10 seconds or gradual acceleration to no-load conditions per vendor recommendations will be an acceptable alternative.

4.8.1.1.2 (Continued)

b. Check for and remove accumulated water:

at the frequency specified in the Surveillance Frequency Control Program

1. From the day tank, ~~at least once per 31 days~~ and after each operation of the diesel where the period of operation was greater than 1 hour, and

2. From the main fuel oil storage tank, ~~at least once per 31 days~~.

c. By sampling new fuel oil in accordance with ASTM-D4057-81 prior to addition to storage tanks and:

1. By verifying, in accordance with the tests specified in ASTM-D975-81 prior to addition to the storage tanks, that the sample has:

a) An API Gravity of within 0.3 degrees at 60°F, or a specific gravity of within 0.0016 at 60°F, when compared to the supplier's certificate, or an absolute specific gravity at 60°F of greater than or equal to 0.83 but less than or equal to 0.89, or an API gravity of greater than or equal to 26 degrees but less than or equal to 38 degrees.

b) A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if the gravity was not determined by comparison with the supplier's certification;

c) A flash point equal to or greater than 125°F; and

d) A clear and bright appearance with proper color when tested in accordance with ASTM-D4176-82.

2. By verifying within 30 days of obtaining the sample that the other properties specified in Table 1 of ASTM-D975-81 are met when tested in accordance with ASTM-D975-81 except that the analysis for sulfur may be performed in accordance with ASTM-D1552-79 or ASTM-D2622-82.

At the frequency specified in the Surveillance Frequency Control Program

d. ~~At least once every 31 days~~ by obtaining a sample of fuel oil from the storage tank, in accordance with ASTM-D2276-78, and verifying that total particulate contamination is less than 10 mg/liter when checked in accordance with ASTM-D2276-78, Method A.

e. ~~At least once per 184 days, on a STAGGERED TEST BASIS~~, the diesel generators shall be started** and accelerated to at least 450 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz in less than or equal to 10 seconds after the start signal.

**This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

The generator shall be manually synchronized to its appropriate emergency bus, loaded to an indicated 6200-6400*** kW, and operate for at least 60 minutes. The diesel generator shall be started for this test by using one of the following signals on a rotating basis:

1. Simulated loss of offsite power by itself, and

2. A Safety Injection test signal by itself.

This test, if it is performed so that it coincides with the testing required by Surveillance Requirement 4.8.1.1.2.a.4, may also serve to concurrently meet those requirements as well.

f. ~~At least once per 18 months by~~: 1

At the frequency specified in the Surveillance Frequency Control Program by:

1. DELETED

2. During shutdown, verifying that, on rejection of a load of greater than or equal to 1078 kW, the voltage and frequency are maintained with 6900 ± 690 volts and 60 ± 6.75 Hz, with frequency stabilizing to 60 ± 1.2 Hz within 10 seconds without any safety-related load tripping out or operating in a degraded condition. 1

3. During shutdown, verifying that the load sequencing timer is OPERABLE with the interval between each load block within 10% of its design interval. 1

4. During shutdown, simulating a loss of offsite power by itself, and: 1

***This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing or momentary variations due to changing bus loads shall not invalidate the test.

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

a) Verifying de-energization of the emergency buses and load shedding from the emergency buses.

b) Verifying the diesel starts** on the auto-start signal, energizing the emergency buses with permanently connected loads in less than or equal to 10 seconds, energizing the auto-connected shutdown loads through the load sequencer, and operating for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization of these loads, the steady-state voltage and frequency shall be maintained at 6900 ± 690 volts and 60 ± 1.2 Hz.

5. During shutdown, verifying that on a safety injection test signal (without loss of power) the diesel generator starts** on the auto-start signal and operates on standby for greater than or equal to 5 minutes.

6. During shutdown, simulating a loss of offsite power in conjunction with a safety injection test signal, and

a) Verifying de-energization of the emergency buses and load shedding from the emergency buses.

b) Verifying the diesel starts** on the auto-start signal, energizing the emergency buses with permanently connected loads in less than or equal to 10 seconds, energizing the auto-connected emergency (accident) loads through the sequencing timers, and operating for greater than or equal to 5 minutes and maintaining the steady-state voltage and frequency at 6900 ± 690 volts and 60 ± 1.2 Hz.

c) DELETED

**This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

No Changes on this page.

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

7. Verifying the diesel generator operates** for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to 6800-7000 kW*** and, during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated 6200-6400 kW***.

8. DELETED

9. During shutdown, verifying the diesel generator's capability to:

   a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,
   b) Transfer its loads to the offsite power source, and
   c) Proceed through its shutdown sequence.

10. DELETED

11. During shutdown, verifying the generator capability to reject a load of between 6200 and 6400 kW without tripping. The generator voltage shall not exceed 110% of the generator voltage at the start of the test during and following the load rejection;

12. During shutdown, verifying that, with the diesel generator operating in a test mode and connected to its bus, a simulated Safety Injection signal overrides the test mode by: (1) returning the diesel generator to standby operation and (2) automatically energizing the emergency loads with offsite power.

**This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

***This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing or momentary variations due to changing bus loads shall not invalidate the test.

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

13. During shutdown, verifying that all diesel generator trips, except engine overspeed, loss of generator potential transformer circuits, generator differential, and emergency bus differential are automatically bypassed on a simulated or actual loss of offsite power signal in conjunction with a safety injection signal.

14. During shutdown, verifying that within 5 minutes of shutting down the EDG, after the EDG has operated for at least 2 hours at an indicated load of 6200-6400 kw, the EDG starts and accelerates to 6900 ± 690 volts and 60 ± 1.2 hz in 10 seconds or less.

g. ~~At least once per 10 years~~ or after any modifications which could affect diesel generator interdependence by starting** both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to at least 450 rpm in less than or equal to 10 seconds.

h. ~~At least once per 10 years~~ by:

1) Draining each main fuel oil storage tank, removing the accumulated sediment, and cleaning the tank using a sodium hypochlorite solution or other appropriate cleaning solution, and

2) Performing a pressure test, of those isolable portions of the diesel fuel oil piping system designed to Section III, subsection ND of the ASME Code, at a test pressure equal to 110% of the system design pressure.

At the frequency specified in the Surveillance Frequency Control Program

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**This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

ELECTRICAL POWER SYSTEMS

3/4.8.2 D.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.1 As a minimum, the following D.C. electrical sources shall be OPERABLE:

a. 125-volt Emergency Battery Bank 1A-SA and either full capacity charger, 1A-SA or 1B-SA, and,

b. 125-volt Emergency Battery Bank 1B-SB and either full capacity charger, 1A-SB or 1B-SB.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one of the required D.C. electrical sources inoperable, restore the inoperable D.C. electrical source to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.1 Each 125-volt Emergency Battery and charger shall be demonstrated OPERABLE:

a. ~~At least once per 7 days~~ by verifying that:

   1. The parameters in Table 4.8-2 meet the Category A limits, and

   2. The total battery terminal voltage is greater than or equal to 129 volts on float charge.

At the frequency specified in the Surveillance Frequency Control Program

b. ~~At least once per 92 days~~ and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:

   1. The parameters in Table 4.8-2 meet the Category B limits,

   2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm, and

   3. The average electrolyte temperature of 10 connected cells is above 70° F.

SURVEILLANCE REQUIREMENTS (Continued)

c. ~~At least once per 18 months~~ by verifying that:

   1. The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,

   2. The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,

   3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohm, and

   4. The battery charger will supply at least 150 amperes at greater than or equal to 125 volts for at least 4 hours.

d. ~~At least once per 18 months~~, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test;

At the frequency specified in the Surveillance Frequency Control Program

e. ~~At least once per 60 months~~, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. ~~Once per 60-month interval~~ this performance discharge test may be performed in lieu of the battery service test required by Specification 4.8.2.1d.; and

f. At least once per 18 months, during shutdown, by giving performance discharge tests of battery capacity to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

No Changes on this page.

TABLE 4.8-2

BATTERY SURVEILLANCE REQUIREMENTS

	CATEGORY A[1]	CATEGORY B[2]	
PARAMETER	LIMITS FOR EACH DESIGNATED PILOT CELL	LIMITS FOR EACH CONNECTED CELL	ALLOWABLE[3] VALUE FOR EACH CONNECTED CELL
Electrolyte Level	>Minimum level indication mark, and < ¼" above maximum level indication mark	>Minimum level indication mark, and < ¼" above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts [6]	> 2.07 volts
Specific Gravity[4]	≥ 1.200[5]	≥ 1.195	Not more than 0.020 below the average of all connected cells
		Average of all connected cells > 1.205	Average of all connected cells ≥ 1.195[5]

TABLE NOTATIONS

(1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.

(2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.

(3) Any Category B parameter not within its allowable value indicates an inoperable battery.

(4) Corrected for electrolyte temperature and level.

(5) Or battery charging current is less than 2 amps when on charge.

(6) Corrected for average electrolyte temperature.

LIMITING CONDITION FOR OPERATION

ACTION:

a. With one of the required divisions of A.C. ESF buses not fully energized, reenergize the division within 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one 118-volt A.C. vital bus not energized from its associated inverter, reenergize the 118-volt A.C. vital bus within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With one 118-volt A.C. vital bus not energized from its associated inverter connected to its associated D.C. bus, re-energize the 118-volt A.C. vital bus through its associated inverter connected to its associated D.C. bus within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With either 125-volt D.C. bus 1A-SA or 1B-SB not energized from its associated Emergency Battery, reenergize the D.C. bus from its associated Emergency Battery within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.3.1 The specified buses shall be determined energized in the required manner ~~at least once per 7 days~~ by verifying correct breaker alignment and indicated voltage on the buses.

at the frequency specified in the Surveillance Frequency Control Program

LIMITING CONDITION FOR OPERATION

3.8.3.2 As a minimum, one of the following divisions of electrical buses shall be energized in the specified manner:

a. Division A, consisting of:

1. 6900-volt Bus 1A-SA and
2. 480 volt Buses 1A2-SA and 1A3-SA, and
3. 118-volt A.C. Vital Buses 1DP-1A-SI and 1DP-1A-SIII energized from their associated inverter connected to 125-volt D.C. Bus DP-1A-SA, and
4. 125-volt D.C. Bus DP-1A-SA energized from Emergency Battery 1A-SA and chargers 1A-SA or 1B-SA, or

b. Division B, consisting of:

1. 6900-volt Bus 1B-SB and
2. 480-volt Buses 1B2-SB and 1B3-SB, and
3. 118-volt AC Vital Buses 1DP-1B-SII and 1DP-1B-SIV energized from their associated inverter connected to 125-volt D.C. Bus DP-1B-SB, and
4. 125-volt D.C. Bus DP-1B-SB energized from Emergency Battery 1B-SB and chargers 1B-SB or 1A-SB.

APPLICABILITY MODES 5 and 6.

ACTION:

With any of the above required electrical buses not energized in the required manner, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, or movement of irradiated fuel; initiate corrective action to energize the required electrical buses in the specified manner as soon as possible; and within 8 hours, depressurize and vent the RCS through a vent of ≥ 2.9 square inches.

SURVEILLANCE REQUIREMENTS

4.8.3.2 The specified buses shall be determined energized in the required manner ~~at least once per 7 days~~ by verifying correct breaker alignment and indicated voltage on the buses.

at the frequency specified in the Surveillance Frequency Control Program

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 Each containment penetration conductor overcurrent protective device specified in the Technical Specification Equipment List Program, plant procedure PLP-106, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one or more of the containment penetration conductor overcurrent protective device(s) inoperable:

a. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping the associated backup circuit breaker or racking out or removing the inoperable circuit breaker within 72 hours, declare the affected system or component inoperable, and verify the backup circuit breaker to be tripped or the inoperable circuit breaker racked out or removed at least once per 7 days thereafter, or

b. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.4.1 Each containment penetration conductor overcurrent protective devices shall be demonstrated OPERABLE:

a. ~~At least once per 18 months~~: [At the frequency specified in the Surveillance Frequency Control Program]

1. By verifying that the 6900-volt circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers, and performing the following:

a) A CHANNEL CALIBRATION of the associated protective relays,

b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed, and

SURVEILLANCE REQUIREMENTS (Continued)

4.8.4.1 (Continued)

c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

2. By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. Testing of these circuit breakers shall consist of injecting a current with a value equal to 300% of the pickup of the long-time delay trip element and 150% of the pickup of the short-time delay trip element, and verifying that the circuit breaker operates within the time delay band width for that current specified by the manufacturer. The instantaneous element shall be tested by injecting a current equal to ±20% of the pickup value of the element and verifying that the circuit breaker trips instantaneously with no intentional time delay. Molded case circuit breaker testing shall also follow this procedure except that generally no more than two trip elements, time delay and instantaneous, will be involved. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

At the frequency specified in the Surveillance Frequency Control Program

b. ~~At least once per 60 months~~ by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION

LIMITING CONDITION FOR OPERATION

3.8.4.2 The thermal overload protection of each valve, specified in the Technical Specification Equipment List Program, plant procedure PLP-106, requiring bypass protection, shall be bypassed only under accident conditions by an OPERABLE bypass device.

APPLICABILITY: Whenever the motor-operated valve is required to be OPERABLE.

ACTION:

With the thermal overload protection for one or more of the above required valves not capable of being bypassed under conditions for which it is designed to be bypassed, restore the inoperable device or provide a means to bypass the thermal overload within 8 hours, or declare the affected valve(s) inoperable and apply the appropriate ACTION Statement(s) of the affected system(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2 The thermal overload protection for the above required valves shall be verified to be bypassed only under accident conditions by an OPERABLE integral bypass device by the performance of a TRIP ACTUATION DEVICE OPERATIONAL TEST of the bypass circuitry:

a. ~~At least once per 18 months~~ for those thermal overloads which are normally in force during plant operation and are bypassed only under accident conditions; and

b. Following maintenance on the thermal overload bypass relays and circuitry.

At the frequency specified in the Surveillance Frequency Control Program

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1.a The boron concentration of all filled portions of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be maintained uniform and within the limit specified in the COLR.

3.9.1.b The valves listed in Table 3.9-1 shall be in their positions required by Table 3.9-1.

APPLICABILITY: MODE 6.

ACTION:

a. With the requirements of Specification 3.9.1.a not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes, and initiate actions to restore boron concentration to within limits.

b. With the requirements of Specification 3.9.1.b not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes, and initiate action to return the valve(s) to the position required by Table 3.9-1.

SURVEILLANCE REQUIREMENTS

4.9.1.1 The boron concentration of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be determined by chemical analysis to be within the limits of the COLR ~~at least once per 72 hours~~. [inserted: at the frequency specified in the Surveillance Frequency Control Program]

4.9.1.2 ~~At least once per 31 days~~, [inserted: At the frequency specified in the Surveillance Frequency Control Program] verify that the valves listed in Table 3.9-1 are in their positions required by Table 3.9-1.

At the frequency specified in the Surveillance Frequency Control Program

at the frequency specified in the Surveillance Frequency Control Program

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 As a minimum, two Source Range Neutron Flux Monitors* shall be OPERABLE, each with continuous visual indication in the control room and one with audible indication in the containment and control room.

APPLICABILITY: MODE 6.

ACTION:

a. With one of the above required monitors inoperable or not operating, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

b. With both of the above required monitors inoperable or not operating, in addition to Action a. above, immediately initiate actions to restore one source range neutron flux monitor to OPERABLE status and determine the boron concentration of the Reactor Coolant System within 4 hours and once per 12 hours thereafter.

SURVEILLANCE REQUIREMENTS

4.9.2 Each neutron flux monitor shall be demonstrated OPERABLE by performance of:

a. A CHANNEL CHECK ~~at least once per 12 hours~~.

b. A CHANNEL CALIBRATION ~~once per 18 months~~.

at the frequency specified in the Surveillance Frequency Control Program

*A Wide Range Neutron Flux Monitor may be substituted for one of the Source Range Neutron Flux Monitors provided the OPERABLE Source Range Neutron Flux Monitor is capable of providing audible indication in the containment and in the control room.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

3.9.4 The containment building penetrations shall be in the following status:

a. The equipment door is cabable of being closed and held in place by a minimum of four bolts*.

b. A minimum of one door in each airlock is capable of being closed*, and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

1. Be capable of being* closed by a manual or automatic isolation valve, blind flange or equivalent, or

2. Be capable of being closed by OPERABLE automatic normal containment purge and containment pre-entry purge makeup and exhaust isolation valves*.

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment building.

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment building penetrations shall be determined to be either in its closed/isolated condition, capable of being closed/isolated*, or capable of being closed by OPERABLE automatic normal containment purge and containment pre-entry purge makeup and exhaust isolation valves ~~at least once per 7 days~~ during CORE ALTERATIONS or movement of irradiated fuel in the containment building by:

at the frequency specified in the Surveillance Frequency Control Program

a. Verifying the penetrations are either closed/isolated or capable of being closed/isolated*, or

b. Testing the normal containment purge and containment pre-entry purge makeup and exhaust isolation valves per the applicable portions of Specification 4.6.3.2.

* Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be opened under administrative controls.

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

HIGH WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation.*

APPLICABILITY: MODE 6, with irradiated fuel in the vessel when the water level above the top of the reactor vessel flange is greater than or equal to 23 feet.

ACTION:

With no RHR loop OPERABLE and in operation, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to OPERABLE and operating status as soon as possible. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

SURVEILLANCE REQUIREMENTS

4.9.8.1 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 2500 gpm ~~at least once per 12 hours~~.

at the frequency specified in the Surveillance Frequency Control Program

* The RHR loop may be removed from operation for up to 1 hour per 2-hour period during the performance of CORE ALTERATIONS and core loading verification in the vicinity of the reactor vessel hot legs.

LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.2 Two independent residual heat removal (RHR) loops shall be OPERABLE, and at least one RHR loop shall be in operation.*

APPLICABILITY: MODE 6, with irradiated fuel in the vessel when the water level above the top of the reactor vessel flange is less than 23 feet.

ACTION:

a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status or to establish greater than or equal to 23 feet of water above the reactor vessel flange as soon as possible.

b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

SURVEILLANCE REQUIREMENTS

4.9.8.2.1 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 2500 gpm ~~at least once per 12 hours~~ whenever the water level is at or above the reactor vessel flange.

4.9.8.2.2 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 900 gpm ~~at least once per 12 hours~~ whenever the water level is below the reactor vessel flange.

at the frequency specified in the Surveillance Frequency Control Program

* The operating RHR loop may be removed from operation for up to 1 hour per 2-hour period during the performance of CORE ALTERATIONS and core loading verification in the vicinity of the reactor vessel hot legs.

3/4.9.9 CONTAINMENT VENTILATION ISOLATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.9 The Containment Ventilation Isolation System shall be OPERABLE.

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

a. With the Containment Ventilation Isolation System inoperable, close each of the containment purge makeup and exhaust penetrations providing direct access from the containment atmosphere to the outside atmosphere.*

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.9 The Containment Ventilation Isolation System shall be demonstrated OPERABLE within 100 hours prior to the start of and ~~at least once per 7 days~~ during CORE ALTERATIONS by verifying that containment ventilation isolation occurs on a two-out-of-four High Radiation test signal from the containment area radiation monitors (Table 3.3-6, item 1.a) and by verifying that isolation occurs for each valve using its control switch in the main control room.

at the frequency specified in the Surveillance Frequency Control Program

*Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be opened under administrative controls.

3/4.9.10 WATER LEVEL - REACTOR VESSEL

LIMITING CONDITION FOR OPERATION

3.9.10 At least 23 feet of water shall be maintained over the top of the reactor vessel flange.

APPLICABILITY: MODE 6, during movement of irradiated fuel assemblies within containment, or during CORE ALTERATIONS, except during latching and unlatching of control rod drive shafts.

ACTION:

With the requirements of the above specification not satisfied, suspend CORE ALTERATIONS, including operations involving movement of fuel assemblies within containment, and initiate actions to restore refueling cavity water level to within limits.

SURVEILLANCE REQUIREMENTS

4.9.10 The water level shall be determined to be at least its minimum required depth ~~once per 24 hours~~.

at the frequency specified in the Surveillance Frequency Control Program

3/4.9.11 WATER LEVEL - NEW AND SPENT FUEL POOLS

LIMITING CONDITION FOR OPERATION

3.9.11 At least 23 feet of water shall be maintained over the top of fuel rods within irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: Whenever irradiated fuel assemblies are in a pool.

ACTION:

a. With the requirements of the above specification not satisfied, suspend all movement of fuel assemblies and crane operations with loads in the affected pool area and restore the water level to within its limit within 4 hours.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.11 ~~At least once per 7 days~~, when irradiated fuel assemblies are in a pool, the water level in that pool shall be determined to be at least its minimum required depth.

At the frequency specified in the Surveillance Frequency Control Program

3/4.9.12 FUEL HANDLING BUILDING EMERGENCY EXHAUST SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.12 Two independent Fuel Handling Building Emergency Exhaust System Trains shall be OPERABLE.*

APPLICABILITY: Whenever irradiated fuel is in a storage pool.

ACTION:

a. With one Fuel Handling Building Emergency Exhaust System Train inoperable, fuel movement within the storage pool or crane operation with loads over the storage pool may proceed provided the OPERABLE Fuel Handling Building Emergency Exhaust System Train is capable of being powered from an OPERABLE emergency power source and is in operation and discharging through at least one train of HEPA filters and charcoal adsorber.

b. With no Fuel Handling Building Emergency Exhaust System Trains OPERABLE, suspend all operations involving movement of fuel within the storage pool or crane operation with loads over the storage pool until at least one Fuel Handling Building Emergency Exhaust System Train is restored to OPERABLE status.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.12 The above required Fuel Handling Building Emergency Exhaust System trains shall be demonstrated OPERABLE:

At the frequency specified in the Surveillance Frequency Control Program

a. ~~At least once per 31 days on a STAGGERED TEST BASIS~~ by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;

b. ~~At least once per 18 months~~ or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following significant painting, fire, or chemical release in any ventilation zone communicating with the system by:

   1. Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the unit flow rate is 6600 cfm ± 10% during system operation when tested in accordance with ANSI N510-1980.

* The Fuel Handling Building Emergency Exhaust System boundary may be opened intermittently under administrative controls.

SURVEILLANCE REQUIREMENTS (Continued)

4.9.12 (Continued)

2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodide penetration of ≤ 2.5% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.

c. After every 720 hours of charcoal adsorber operation by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodide penetration of ≤ 2.5% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.

d. ~~At least once per 18 months~~ by:

At the frequency specified in the Surveillance Frequency Control Program

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber bank is not greater than 4.1 inches water gauge while operating the unit at a flow rate of 6600 cfm ± 10%,

2. Verifying that, on a High Radiation test signal, the system automatically starts and directs its exhaust flow through the HEPA filters and charcoal adsorber banks,

3. Verifying that the system maintains the spent fuel storage pool area at a negative pressure of greater than or equal to 1/8 inch water gauge, relative to the outside atmosphere, during system operation at a flow rate of 6600 cfm ± 10%,and

4. Deleted

5. Verifying that the heaters dissipate 40 ± 4 kW when tested in accordance with ANSI N510-1980.

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the unit at a flow rate of 6600 cfm ± 10%.

3/4.10 SPECIAL TEST EXCEPTIONS

3/4.10.1 SHUTDOWN MARGIN

LIMITING CONDITION FOR OPERATION

3.10.1 The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 may be suspended for measurement of shutdown and control rod worth and SHUTDOWN MARGIN provided reactivity equivalent to at least the highest estimated single rod worth is available for trip insertion from OPERABLE control rod(s).

APPLICABILITY: MODE 2.

ACTION:

a. With any shutdown and control rod not fully inserted and with less than the above reactivity equivalent available for trip insertion, immediately initiate and continue boration at greater than or equal to 30 gpm of a solution containing greater than or equal to 7000 ppm boron or its equivalent until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.

b. With all shutdown and control rods fully inserted and the reactor subcritical by less than the above reactivity equivalent, immediately initiate and continue boration at greater than or equal to 30 gpm of a solution containing greater than or equal to 7000 ppm boron or its equivalent until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.

SURVEILLANCE REQUIREMENTS

4.10.1.1 The position of each shutdown and control rod either partially or fully withdrawn shall be determined ~~at least once per 2 hours~~.

4.10.1.2 Each shutdown and control rod not fully inserted shall be demonstrated capable of full insertion when tripped from at least the 50% withdrawn position within 24 hours prior to reducing the SHUTDOWN MARGIN to less than the limits of Specification 3.1.1.1.

at the frequency specified in the Surveillance Frequency Control Program

3/4.10.2 GROUP HEIGHT, INSERTION, AND POWER DISTRIBUTION LIMITS

LIMITING CONDITION FOR OPERATION

3.10.2 The group height, insertion, and power distribution limits of Specifications 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.1, and 3.2.4 may be suspended during the performance of PHYSICS TESTS provided:

a. The THERMAL POWER is maintained less than or equal to 85% of RATED THERMAL POWER, and

b. The limits of Specifications 3.2.2 and 3.2.3 are maintained and determined at the frequencies specified in Specification 4.10.2.2 below.

APPLICABILITY: MODE 1.

ACTION:

With any of the limits of Specification 3.2.2 or 3.2.3 being exceeded while the requirements of Specifications 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.1, and 3.2.4 are suspended, either:

a. Reduce THERMAL POWER sufficient to satisfy the ACTION requirements of Specifications 3.2.2 and 3.2.3, or

b. Be in HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.10.2.1 The THERMAL POWER shall be determined to be less than or equal to 85% of RATED THERMAL POWER ~~at least once per hour~~ during PHYSICS TESTS.

4.10.2.2 The requirements of the below listed specifications shall be performed ~~at least once per 12 hours~~ during PHYSICS TESTS:

a. Specification 4.2.2.2 and

b. Specification 4.2.3.2.

1

at the frequency specified in the Surveillance Frequency Control Program

SPECIAL TEST EXCEPTIONS

3/4.10.3 PHYSICS TESTS

LIMITING CONDITION FOR OPERATION

3.10.3 The limitations of Specifications 3.1.1.3, 3.1.1.4, 3.1.3.1, 3.1.3.5, and 3.1.3.6 may be suspended during the performance of PHYSICS TESTS provided:

a. The THERMAL POWER does not exceed 5% of RATED THERMAL POWER,

b. The Reactor Trip Setpoints on the OPERABLE Intermediate and Power Range channels are set at less than or equal to 25% of RATED THERMAL POWER, and

c. The Reactor Coolant System lowest operating loop temperature (T_{avg}) is greater than or equal to 541°F.

APPLICABILITY: MODE 2.

ACTION:

a. With the THERMAL POWER greater than 5% of RATED THERMAL POWER, immediately open the Reactor trip breakers.

b. With a Reactor Coolant System operating loop temperature (T_{avg}) less than 541°F, restore T_{avg} to within its limit within 15 minutes or be in at least HOT STANDBY within the next 15 minutes.

SURVEILLANCE REQUIREMENTS

4.10.3.1 The THERMAL POWER shall be determined to be less than or equal to 5% of RATED THERMAL POWER ~~at least once per hour~~ during PHYSICS TESTS.

4.10.3.2 Each Intermediate and Power Range channel shall be subjected to an ANALOG CHANNEL OPERATIONAL TEST within 12 hours prior to initiating PHYSICS TESTS.

4.10.3.3 The Reactor Coolant System temperature (T_{avg}) shall be determined to be greater than or equal to 541°F ~~at least once per 30 minutes~~ during PHYSICS TESTS.

at the frequency specified in the Surveillance Frequency Control Program

3/4.10.4 REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

3.10.4 The limitations of Specification 3.4.1.1 may be suspended during the performance of startup and PHYSICS TESTS in MODE 1 or 2 provided:

a. The THERMAL POWER does not exceed the P-7 Interlock Setpoint, and

b. The Reactor Trip Setpoints on the OPERABLE Intermediate and Power Range channels are set less than or equal to 25% of RATED THERMAL POWER.

APPLICABILITY: During operation below the P-7 Interlock Setpoint.

ACTION:

With the THERMAL POWER greater than the P-7 Interlock Setpoint, immediately open the reactor trip breakers.

SURVEILLANCE REQUIREMENTS

4.10.4.1 The THERMAL POWER shall be determined to be less than P-7 Interlock Setpoint ~~at least once per hour~~ during startup and PHYSICS TESTS.

4.10.4.2 Each Intermediate and Power Range channel, and P-7 Interlock shall be subjected to an ANALOG CHANNEL OPERATIONAL TEST within 12 hours prior to initiating startup and PHYSICS TESTS.

at the frequency specified in the Surveillance Frequency Control Program

SPECIAL TEST EXCEPTIONS

3/4.10.5 POSITION INDICATION SYSTEM - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.10.5 The limitations of Specification 3.1.3.3 may be suspended during the performance of individual shutdown and control rod drop time measurements provided;

a. Only one shutdown or control bank is withdrawn from the fully inserted position at a time, and

b. The rod position indicator is OPERABLE during the withdrawal of the rods.*

APPLICABILITY: MODES 3, 4, and 5 during performance of rod drop time measurements.

ACTION:

With the Position Indication Systems inoperable or with more than one bank of rods withdrawn, immediately open the Reactor trip breakers.

SURVEILLANCE REQUIREMENTS

4.10.5 The above required Position Indication Systems shall be determined to be OPERABLE within 24 hours prior to the start of and ~~at least once per 24 hours~~ at the frequency specified in the Surveillance Frequency Control Program thereafter during rod drop time measurements by verifying the Demand Position Indication System and the Digital Rod Position Indication System agree:

a. Within 12 steps when the rods are stationary, and

b. Within 24 steps during rod motion.

*This requirement is not applicable during the initial calibration of the Digital Rod Position Indication System provided: (1) k_{eff} is maintained less than or equal to 0.95, and (2) only one shutdown or control rod bank is withdrawn from the fully inserted position at one time.

LIMITING CONDITION FOR OPERATION

3.11.2.5 The concentration of oxygen in the GASEOUS RADWASTE TREATMENT SYSTEM downstream of the hydrogen recombiners shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

APPLICABILITY: At all times.

ACTION:

a. With the concentration of oxygen in the GASEOUS RADWASTE TREATMENT SYSTEM downstream of the hydrogen recombiners greater than 2% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.

b. With the concentration of oxygen in the GASEOUS RADWASTE TREATMENT SYSTEM downstream of the hydrogen recombiners greater than 4% by volume and the hydrogen concentration greater than 4% by volume, immediately suspend all additions of waste gases to the system and reduce the concentration of oxygen to less than or equal to 4% by volume, then take ACTION a., above.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.5 The concentrations of hydrogen and oxygen in the GASEOUS RADWASTE TREATMENT SYSTEM shall be determined to be within the above limits by monitoring, ~~at least once per 12 hours~~, the waste gases in the GASEOUS RADWASTE TREATMENT SYSTEM.

at the frequency specified in the Surveillance Frequency Control Program

(INSERT NEW PAGE)

PROCEDURES AND PROGRAMS (Continued)

p. Surveillance Frequency Control Program

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

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

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

c. The provisions of Surveillance Requirements 4.0.2 and 4.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

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HNP-15-040

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1
DOCKET NO. 50-400 / RENEWED LICENSE NO. NPF-63

APPLICATION FOR TECHNICAL SPECIFICATION CHANGE REGARDING RISK- INFORMED JUSTIFICATION FOR THE RELOCATION OF SPECIFIC SURVEILLANCE FREQUENCY REQUIREMENTS TO A LICENSEE CONTROLLED PROGRAM

Enclosure 4

Proposed Technical Specification Bases Changes (For Information Only)
(18 pages including cover)

MOVABLE CONTROL ASSEMBLIES (Continued)

The intent of Technical Specification 3.1.3.1 ACTION statement "a" is to ensure, before leaving ACTION statement "a" and utilizing ACTION statement "c," that the rod urgent Failure alarm is illuminated or that an obvious electrical problem in the rod control system is detected by minimal electrical troubleshooting techniques. Expeditious action will be taken to determine if rod immovability is caused by an electrical problem in the rod control system.

The ACTION statements which permit limited variations from the basic requirements are accompanied by additional restrictions which ensure that the original design criteria are met. Misalignment of a rod requires measurement of peaking factors and a restriction in THERMAL POWER. These restrictions provide assurance of fuel rod integrity during continued operation. In addition, those safety analyses affected by a misaligned rod are reevaluated to confirm that the results remain valid during future operation.

The maximum rod drop time restriction is consistent with the assumed rod drop time used in the safety analyses. Measurement with T_{avg} greater than or equal to 551°F and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a Reactor trip at operating conditions.

~~Control rod positions and OPERABILITY of the rod position indicators are required to be verified on a nominal basis of once per 12 hours with more frequent verifications required if an automatic monitoring channel is inoperable.~~ These verification frequencies are adequate for assuring that the applicable LCOs are satisfied.

Control rod positions and OPERABILITY of the rod position indicators are required to be verified at the frequency specified in the Surveillance Frequency Control Program with more frequent verifications required if an automatic monitoring channel is inoperable.

3/4.2.2 AND 3/4.2.3 HEAT FLUX HOT CHANNEL FACTOR AND NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR

The limits on heat flux hot channel factor and enthalpy rise hot channel factor ensure that: (1) the design limits on peak local power density and minimum DNBR are not exceeded and (2) in the event of a LOCA the peak fuel clad temperature will not exceed the 2200°F ECCS acceptance criteria limit.

$F_{\Delta H}$ is not directly measurable but is inferred from a power distribution map obtained with the movable incore detector system. $F_{\Delta H}$ and $F_Q(Z)$ will normally only be determined periodically as specified in Specifications 4.2.2 and 4.2.3. This periodic surveillance is sufficient to ensure that the limits are maintained provided:

and in accordance with the Surveillance Frequency Control Program.

a. Control rods in a single group move together with no individual rod insertion differing by more than ± 12 steps, indicated, from the group demand position;

b. Control rod groups are sequenced with overlapping groups as described in Specification 3.1.3.6;

3/4.2.5 DNB PARAMETERS (Continued)

If detected, action shall be taken before performing subsequent precision heat balance measurements, i.e. either the effect of the fouling shall be quantified and compensated for in the RCS flow rate measurement or the venturi shall be cleaned to eliminate the fouling.

Surveillance 4.2.5.1 ensures that temperature and pressure parameters, through instrument readout, are restored within their respective limits following load changes and other expected transient operation. The periodic surveillance of indicated RCS flow is intended to detect flow degradation.

Surveillance 4.2.5.2 allows entry into MODE 1, without having performed the surveillance, and placement of the unit in the best condition for performing the surveillance. Measurement of RCS flow rate by performance of a precision calorimetric heat balance allows the installed RCS flow instrumentation to be calibrated and verifies that the actual RCS flow rate is greater than or equal to the minimum required RCS flow rate. ~~The frequency of 18 months reflects the importance of verifying flow following a refueling outage, where work activities were performed that could affect RCS flow.~~ Performance of a precision calorimetric at other times are unnecessary unless changes were introduced that would substantially reduce RCS flow and are likely to produce non-conservative results. The surveillance requirement to perform the precision calorimetric within 24 hours after exceeding 95% RTP is intended to stress the importance of collecting plant flow data as soon as practical after reaching a stable power level that is sufficient for performing the test and in recognition that some plants have experienced feedwater venturi fouling and other phenomena that are more probable as time elapses. If the precision calorimetric data can not be collected in the required time period, it is necessary to reduce power to less than 95% RTP until preparations are complete for collecting precision calorimetric data. Reducing power to less than 95%, resets the allowable time period requirement to perform the precision calorimeter within 24 hours after exceeding 95% RTP.

The surveillance frequency is controlled under the Surveillance Frequency Control Program and reflects the importance of verifying flow following a refueling outage, where work activities were performed that could affect RCS flow.

Surveillance intervals have been determined in accordance with the Surveillance Frequency Control Program

3/4.3.1 AND 3/4.3.2 REACTOR TRIP SYSTEM INSTRUMENTATION AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

The OPERABILITY of the Reactor Trip System and the Engineered Safety Features Actuation System instrumentation and interlocks ensures that: (1) the associated ACTION and/or Reactor trip will be initiated when the parameter monitored by each channel or combination thereof reaches its Setpoint (2) the specified coincidence logic and sufficient redundancy is maintained to permit a channel to be out-of-service for testing or maintenance consistent with maintaining an appropriate level of reliability of the Reactor Trip System and Engineered Safety Features Actuation System instrumentation, and (3) sufficient system functional capability is available from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy, and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the safety analyses. The Surveillance Requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests ~~performed at the minimum frequencies~~ are sufficient to demonstrate this capability. ~~Specified surveillance intervals~~ and surveillance and maintenance outage times have been determined in accordance with WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," and supplements to that report as approved by the NRC and documented in the SERs and SSER (letters to J. J. Sheppard from Cecil O. Thomas dated February 21, 1985; Roger A. Newton from Charles E. Rossi dated February 22, 1989; and Gerard T. Goering from Charles E. Rossi dated April 30, 1990).

The Engineered Safety Features Actuation System Instrumentation Trip Setpoints specified in Table 3.3-4 are the nominal values at which the bistables are set for each functional unit. A Setpoint is considered to be adjusted consistent with the nominal value when the "as measured" Setpoint is within the band allowed for calibration accuracy. For example, if a bistable has a trip setpoint of ≤100%, a span of 125%, and a calibration accuracy of ±0.50%, then the bistable is considered to be adjusted to the trip setpoint as long as the "as measured" value for the bistable is ≤100.62%.

To accommodate the instrument drift assumed to occur between operational tests and the accuracy to which Setpoints can be measured and calibrated, Allowable Values for the Setpoints have been specified in Table 3.3-4. Operation with Setpoints less conservative than the Trip Setpoint but within the Allowable Value is acceptable since an allowance has been made in the safety analysis to accommodate this error. An optional provision has been included for determining the OPERABILITY of a channel when its Trip Setpoint is found to exceed the Allowable Value. The methodology of this option utilizes the "as measured" deviation from the specified calibration point for rack and sensor components in conjunction with a statistical combination of the other uncertainties of the instrumentation to measure the process variable and the uncertainties in calibrating the instrumentation. In Equation 3.3-1, $Z + R + S \leq TA$, the interactive effects of the errors in the rack and the sensor, and the "as measured" values of the errors are considered. Z, as specified in Table 3.3-4, in percent span, is the statistical summation of errors assumed in the analysis excluding those associated with the sensor and rack drift and the accuracy of their measurement. TA or Total Allowance is the difference, in percent span, between the trip setpoint and the value used in the analysis for the actuation. R or Rack Error is the "as measured" deviation, in the percent span, for the affected channel from the specified Trip Setpoint. S or Sensor Error is either the "as measured" deviation of the sensor from its calibration point or the value specified in Table 3.3-4, in percent span, from the analysis assumptions. Use of Equation 3.3-1 allows for a sensor draft factor, an increased rack drift factor, and provides a

specified in the Surveillance Frequency Control Program

threshold value for determination of OPERABILITY.

The methodology to derive the Trip Setpoints is based upon combining all of the uncertainties in the channels. Inherent to the determination of the Trip Setpoints are the magnitudes of these channel uncertainties. Sensor and rack instrumentation utilized in these channels are expected to be capable of operating within the allowances of these uncertainty magnitudes. Rack drift in excess of the Allowable Value exhibits the behavior that the rack has not met its allowance. Being that there is a small statistical chance that this will happen, an infrequent excessive drift is expected. Rack or sensor drift, in excess of the allowance that is more than occasional, may be indicative of more serious problems and should warrant further investigation.

The measurement of response time at the ~~specified~~ frequencies provides assurance that the reactor trip and the Engineered Safety Features actuation associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable. Response time may be demonstrated by any series of sequential, overlapping, or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements; or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise or power interrupt tests); (2) inplace, onsite, or offsite (e.g., vendor) test measurements; or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Rev. 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

WCAP 14036-P-A, Rev. 1, "Elimination of Periodic Response Time Tests," provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component into operational service and re-verified following maintenance or modification that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for the repair are the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing element of a transmitter.

The Engineered Safety Features Actuation System senses selected plant parameters and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents events, and transients. Once the required logic combination is completed, the system sends actuation signals to those Engineered Safety Features components whose aggregate function best serves the requirements of the condition. As an example, the following actions may be initiated by the Engineered Safety Features Actuation System to mitigate the consequences of a steam line break or loss-of-coolant accident: (1) charging/safety injection pumps start and automatic valves position, (2) reactor trip, (3) feedwater isolation, (4) startup of the emergency diesel generators, (5) containment spray pumps start and automatic valves position (6) containment isolation, (7) steam line isolation, (8) turbine trip, (9) auxiliary feedwater pumps start and automatic valves position, (10) containment fan coolers start and automatic valves position, (11) emergency service water pumps start and automatic valves position, and (12) control room isolation and emergency filtration start.

3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

The plant is designed to operate with all reactor coolant loops in operation and maintain DNBR above the design DNBR value during all normal operations and anticipated transients. In MODES 1 and 2 with one reactor coolant loop not in operation this specification requires that the plant be in at least HOT STANDBY within 6 hours.

In MODE 3, two reactor coolant loops provide sufficient heat removal capability for removing core decay heat even in the event of a bank withdrawal accident; however, a single reactor coolant loop provides sufficient heat removal capacity if a bank withdrawal accident can be prevented, i.e., by opening the Reactor Trip System breakers. Single failure considerations require that two loops be OPERABLE at all times.

In MODE 4, and in MODE 5 with reactor coolant loops filled, a single reactor coolant loop or RHR loop provides sufficient heat removal capability for removing decay heat; but single failure considerations require that at least two loops (either RHR or RCS) be OPERABLE.

Surveillance Requirements for MODES 3, 4, and 5 with reactor coolant loops filled require verification of steam generator (SG) OPERABILITY. Verification of adequate level in the applicable steam generator ensures an adequate heat sink for the removal of decay heat. If the SG tubes become uncovered, the associated loop may not be capable of providing the heat sink for the removal of the decay heat. The level values include allowances for channel uncertainty and process measurement effects and may not be simultaneously indicated by the respective instrumentation. ~~The 12 hour frequency is considered adequate in view of other indications available in the control room to alert the operator to a loss of SG level.~~ The surveillance frequency is controlled under the Surveillance Frequency Control Program.

In MODE 5 with reactor coolant loops not filled, a single RHR loop provides sufficient heat removal capability for removing decay heat; but single failure considerations, and the unavailability of the steam generators as a heat removing component, require that at least two RHR loops be OPERABLE.

The operation of one reactor coolant pump (RCP) or one RHR pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System. The reactivity change rate associated with boron reduction will, therefore, be within the capability of operator recognition and control.

The restrictions on starting an RCP with one or more RCS cold legs less than or equal to 325°F are provided to prevent RCS pressure transients, caused by energy additions from the Secondary Coolant System, which could exceed the limits of Appendix G to 10 CFR Part 50. The RCS will be protected against overpressure transients and will not exceed the limits of Appendix G by restricting starting of the RCPs to when the secondary water temperature of each steam generator is less than 50°F above each of the RCS cold leg temperatures.

3/4.4.2 SAFETY VALVES

The pressurizer Code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2735 psig. Each safety valve is designed to relieve 380,000 lbs per hour of saturated steam at the valve Setpoint. The relief capacity of a single safety valve is adequate to relieve any

BASES

SAFETY VALVES (Continued)

overpressure condition which could occur during shutdown. In the event that no safety valves are OPERABLE, an operating RHR loop, connected to the RCS, provides overpressure relief capability and will prevent RCS overpressurization. In addition, the Overpressure Protection System provides a diverse means of protection against RCS overpressurization at low temperatures.

During operation, all pressurizer Code safety valves must be OPERABLE to prevent the RCS from being pressurized above its Safety Limit of 2735 psig. The combined relief capacity of all of these valves is greater than the maximum surge rate resulting from a complete loss-of-load assuming no reactor trip until the second Reactor Trip System trip setpoint is reached (i.e., no credit is taken for a direct Reactor trip on the loss-of-load) and also assuming no operation of the power-operated relief valves or steam dump valves.

Demonstration of the safety valves' lift settings will occur only during shutdown and will be performed in accordance with the provisions of Section XI of the ASME Boiler and Pressure Code.

3/4.4.3 PRESSURIZER

The limit on the maximum water level in the pressurizer assures that the parameter is maintained within the normal steady-state envelope of operation assumed in the SAR. The limit is consistent with the initial SAR assumptions. ~~The 12-hour periodic surveillance is sufficient to ensure that the parameter is restored to within its limit following expected transient operation.~~ The surveillance frequency is controlled under the Surveillance Frequency Control Program. The maximum water level also ensures that a steam bubble is formed and thus the RCS is not a hydraulically solid system. The requirement that a minimum number of pressurizer heaters be OPERABLE enhances the capability of the plant to control Reactor Coolant System pressure and establish natural circulation. I

3/4.4.4 RELIEF VALVES

In MODES 1, 2, and 3 the power-operated relief values (PORVs) provide an RCS pressure boundary, manual RCS pressure control for mitigation of accidents, and automatic RCS pressure relief to minimize challenges to the safety valves.

Providing an RCS pressure boundary and manual RCS pressure control for mitigation of a steam generator tube rupture (SGTR) are the safety-related functions of the PORVs in MODES 1, 2, and 3. The capability of the PORV to perform its function of providing an RCS pressure boundary requires that the PORV or its associated block valve is closed. The capability of the PORV to perform manual RCS pressure control for mitigation of a SGTR accident is based on manual actuation and does not require the automatic RCS pressure control function. The automatic RCS pressure control function of the PORVs is not a safety-related function in MODES 1, 2, and 3. The automatic pressure control function limits the number of challenges to the safety valves, but the safety valves perform the safety function of RCS overpressure protection. Therefore, the automatic RCS pressure control function of the PORVs does not have to be available for the PORVs to be operable.

RELIEF VALVES (Continued)

Each PORV has a remotely operated block valve to provide a positive shutoff capability should a relief valve become inoperable. Operation with the block valves opened is preferred. This allows the PORVs to perform automatic RCS pressure relief should the RCS pressure actuation setpoint be reached. However, operation with the block valve closed to isolate PORV seat leakage is permissible since automatic RCS pressure relief is not a safety-related function of the PORVs.

The OPERABILITY of the PORVs and block valves in MODES 1, 2, and 3 is based on their being capable of performing the following functions:

1. Maintaining the RCS pressure boundary,

2. Manual control of PORVs to control RCS pressure as required for SGTR mitigation,

3. Manual closing of a block valve to isolate a stuck open PORV,

4. Manual closing of a block valve to isolate a PORV with excessive seat leakage, and

5. Manual opening of a block valve to unblock an isolated PORV to allow it to be used to control RCS pressure for SGTR mitigation.

The non-safety PORV and block valve are used only as a backup to the two redundant safety grade PORVs and block valves to control RCS pressure for accident mitigation. Therefore, continued operation with the non-safety PORV unavailable for RCS pressure control is allowed as long as the block valve or PORV can be closed to maintain the RCS pressure boundary.

Surveillance Requirements provide the assurance that the PORVs and block valves can perform their safety functions. Surveillance Requirements 4.4.4.1 and 4.4.4.3 address the PORVs and Surveillance Requirement 4.4.4.2 addresses the block valves. The surveillance frequencies are controlled under the Surveillance Frequency Control Program.

Surveillance Requirement 4.4.4.1.a provides assurance the actuation instrumentation for automatic PORV actuation is calibrated such that the automatic PORV actuation signal is within the required pressure range even though automatic actuation capability of the PORV is not necessary for the PORV to be OPERABLE in MODES 1, 2, and 3.

Surveillance Requirement 4.4.4.1.b provides assurance the PORV is capable of opening and closing. The associated block valve should be closed prior to stroke testing a PORV to preclude depressurization of the RCS. This test will be done in MODES 3 or 4, before the PORV is required for overpressure protection in TS 3.4.9.4.

3/4.4.6.2 OPERATIONAL LEAKAGE (continued)

Surveillance Requirements

4.4.6.2.1 Verifying RCS leakage to be within the LCO limits ensures that the integrity of the RCPB is maintained. PRESSURE BOUNDARY LEAKAGE would at first appear as UNIDENTIFIED LEAKAGE and can only be positively identified by inspection. It should be noted that leakage past seals and gaskets is not PRESSURE BOUNDARY LEAKAGE. UNIDENTIFIED LEAKAGE and IDENTIFIED LEAKAGE are determined by performance of an RCS water inventory balance.

The RCS water inventory balance must be met with the reactor at steady-state operating conditions (stable pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows). The surveillance is modified by a note. The note states that this SR is not required to be performed until 12 hours after establishing steady-state operation. The 12-hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

Steady-state operation is required to perform a proper water inventory balance since calculations during maneuvering are not useful. For RCS operational leakage determination by water inventory balance, steady-state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows.

An early warning of PRESSURE BOUNDARY LEAKAGE or UNIDENTIFIED LEAKAGE is provided by the automatic systems that monitor containment atmosphere radioactivity and reactor cavity sump level. It should be noted that leakage past seals and gaskets is not PRESSURE BOUNDARY LEAKAGE. These leakage detection systems are specified in LCO 3.4.6.1, "Reactor Coolant System Leakage Detection Systems."

Part (d) notes that this SR is not applicable to primary-to-secondary leakage. This is because leakage of 150 gallons per day cannot be measured accurately by an RCS water inventory balance.

~~The 72-hour frequency is a reasonable interval to trend leakage and recognizes the importance of early detection in the prevention of accidents.~~

The surveillance frequency is controlled under the Surveillance Frequency Control Program.

3/4.4.6.2 OPERATIONAL LEAKAGE (continued)

4.4.6.2.2 The Surveillance Requirements for RCS Pressure Isolation Valves provide added assurance of valve integrity thereby reducing the probability of gross valve failure and consequent intersystem LOCA. Leakage from the RCS pressure isolation valve is IDENTIFIED LEAKAGE and will be considered as a portion of the allowed limit.

4.4.6.2.3 This SR verifies that primary-to-secondary leakage is less than or equal to 150 gpd through any one SG. Satisfying the primary-to-secondary leakage limit ensures that the operational leakage performance criterion in the Steam Generator Program is met. If this Surveillance Requirement is not met, compliance with LCO 3.4.5 should be evaluated. The 150-gpd limit is measured at room temperature as described in Reference 4. The operational leakage rate limit applies to leakage through any one SG. If it is not practical to assign the leakage to an individual SG, all the primary-to-secondary leakage should be conservatively assumed to be from one SG.

The surveillance is modified by a note, which states that the Surveillance is not required to be performed until 12 hours after the establishment of steady-state operation. For RCS primary-to-secondary leakage determination, steady-state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows.

The surveillance frequency is controlled under the Surveillance Frequency Control Program.

~~The frequency of 72 hours is a reasonable interval to trend primary-to-secondary leakage and recognizes the importance of early leakage detection in the prevention of accidents.~~ The primary-to-secondary leakage is determined using continuous process radiation monitors or radiochemical grab sampling in accordance wih the EPRI guidelines (Reference 4).

References

1. 10 CFR 50, Appendix A, GDC 30

2. Regulatory Guide 1.45, May 1973

3. NEI 97-06, "Steam Generator Program Guidelines"

4. EPRI, "Pressurized Water Reactor Primary-to-Secondary Leak Guidelines"

3/4.4.7 CHEMISTRY

The limitations on Reactor Coolant System chemistry ensure that corrosion of the Reactor Coolant System is minimized and reduces the potential for Reactor Coolant System leakage or failure due to stress corrosion. Maintaining the chemistry within the Steady-State Limits provides adequate corrosion protection to ensure the structural integrity of the Reactor Coolant System over the life of the plant. The associated effects of exceeding the oxygen, chloride, and fluoride limits are time and temperature dependent. Corrosion studies show that operation may be continued with contaminant concentration levels in excess of the Steady-State Limits, up to the Transient Limits, for the specified limited time intervals without having a significant effect on the structural integrity of the Reactor Coolant System. The time interval permitting continued operation within the restrictions of the Transient Limits provides time for taking corrective actions to restore the contaminant concentrations to within the Steady-State Limits.

The Surveillance Requirements provide adequate assurance that concentrations in excess of the limits will be detected in sufficient time to take corrective action.

The surveillance frequency is controlled under the Surveillance Frequency Control Program.

AUXILIARY FEEDWATER SYSTEM

operation. The AFW System provides decay heat removal immediately following a station blackout event, and is required to mitigate the Loss of Normal Feedwater and Feedwater Line break accidents analyzed in FSAR Chapter 15. The minimum pump performance requirements are based upon a maximum allowable degradation of the pump performance curves. Pump operation at this level has been demonstrated by calculation to deliver sufficient AFW flow to satisfy the accident analysis acceptance criteria.

With regard to the ~~periodic~~ AFW valve position verification of Surveillance Requirement 4.7.1.2.1 Sub-paragraph b.1, this requirement does not include in its scope the AFW flow control valves inline from the AFW motor-driven pump discharge header to each steam generator when they are equipped with an auto-open feature. The auto-open logic feature is designed to automatically open these valves upon receipt of an Engineered Safety Features System AFW start signal. As a consequence, valves with an auto-open feature do not have a "correct position" which must be verified. The valves may be in any position, in any MODE of operation thereby allowing full use of the AFW System for activities such as to adjust steam generator water levels prior to and during plant start-up, as an alternate feedwater system during hot standby, for cooldown operations, and to establish and maintain wet layup conditions in the steam generators.

3/4.7.1.3 CONDENSATE STORAGE TANK

The OPERABILITY of the condensate storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 6 hours with steam discharge to the atmosphere concurrent with total loss-of-offsite power. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics, and the value has also been adjusted in a manner similar to that for the RWST and BAT, as discussed on page B 3/4 1-3.

3/4.7.1.4 SPECIFIC ACTIVITY

The limitations on Secondary Coolant System specific activity ensure that the resultant offsite radiation dose will be limited to a small fraction of 10 CFR Part 100 dose guideline values in the event of a steam line rupture. This dose also includes the effects of a coincident 1 gpm reactor-to-secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the safety analyses.

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES

The OPERABILITY of the main steam line isolation valves ensures that no more than one steam generator will blow down in the event of a steam line rupture. This restriction is required to: (1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and (2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the main steam isolation valves within the closure times of the Surveillance Requirements are consistent with the assumptions used in the safety analyses.

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure-induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on a steam generator RT_{NDT} of 60°F (a generic maximum) and are sufficient to prevent brittle fracture. The Shearon Harris specific RT_{NDT} is limited to a maximum value of 10°F.

3.7.6 b.3 and c.3

In MODE 5 or 6, or during movement of irradiated fuel assemblies, or duringmovement of loads over spent fuel pools, with one or more CREFS trains inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the CRE. This places the unit in a condition that minmizes the accident risk. This does not preclude the movement of fuel to a safe position.

SURVEILLANCE REQUIREMENTS

SR 4.7.6.a

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing each train once every month provides an adequate check of this system. Monthly heater operations dry out any moisture accumulated in the charcoal from humidity in the ambient air. Systems with heaters must be operated for ≥ 10 continuous hours with the heaters energized. ~~The 31 day Frequency is based on the reliability of the equipment and the two train redundancy~~.

The surveillance frequency is controlled under the Surveillance Frequency Control Program.

SR 4.7.6 b,c,e, and f

ANSI N510-1980 will be used as a procedural guide for surveillance testing. Criteria for laboratory testing of charcoal and for in-place testing of HEPA filters and charcoal adsorbers is based upon a removal efficiency of 99% for elemental, particulate and organic forms of radioiodine.

SR 4.7.6 d.1

This SR verifies that the HEPA filters and chaarcoal adsorbers are not excessively blocked. The filter pressure drop was chosen to be half-way between the estimated clean and dirty pressure drops for those components. This assures the full functionality of the filters for a prolonged period, even at the Technical Specification limit. ~~The Frequency of 18 months is based on industry operating experience and is consistent with the typical refueling cycle.~~

The surveillance frequency is controlled under the Surveillance Frequency Control Program.

SR 4.7.6 d.2

This SR verifies that each CREFS train starts and operated on an actual or simulated actuation signal. ~~The Frequency of 18 months is based in industry operating experience and is consistent with the typical refueling cycle.~~

The surveillance frequency is controlled under the Surveillance Frequency Control Program.

SR 4.7.6.d.4

This SR verifies that each CREFS train heater operates within assumed parameters. ~~The Frequency of 18 months is based on industry operating experience and is consistent with the typical refueling cycle.~~

The surveillance frequency is controlled under the Surveillance Frequency Control Program.

SR 4.7.6.g

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the locensing basis analyses of DBA consequences is no more than 5 rem TEDE or its equivalent to any part of the body and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences.

In MODES 1, 2, 3, or 4, when unfiltered air inleakage is greater than the assumed flow rate, ACTION a.2 must be entered. ACTION a.2 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. 5) which endorses, with exceptions NEI 99-03, Section 8.4 and Appendix F (Ref. 6). These compensatory measures may also be used as mitigating actions as required by ACTION a.2. Temporary analytical methods may also be used a compensatory measures to restore OPERABILTIY (Ref. 7). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

REFERENCES

1. FSAR, Section 9.4
2. FSAR, Chapter 15
3. FSAR, Section 6.4
4. FSAR, Section 9.5 and Corrective Action Program Assignment 100903-05.
5. Regulatory Guide 1.196
6. NEI 99-03, "Control Room Habitability Assessment," June 2001.
7. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).

3/4.8.1, 3/4.8.2, AND 3/4.8.3 A.C. SOURCES, D.C. SOURCES, AND ONSITE POWER DISTRIBUTION

The OPERABILITY of the A.C. and D.C power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for: (1) the safe shutdown of the facility, and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50.

The switchyard is designed using a breaker-and-a-half scheme. The switchyard currently has seven connections with the Duke Energy transmission network; each of these transmission lines is physically independent. The switchyard has one connection with each of the two Startup Auxiliary Transformers and each SAT can be fed directly from an associated offsite transmission line. The Startup Auxiliary Transformers are the preferred power source for the Class 1E ESF buses. The minimum alignment of offsite power sources will be maintained such that at least two physically independent offsite circuits are available. The two physically independent circuits may consist of any two of the incoming transmission lines to the SATs (either through the switchyard or directly) and into the Class 1E system. As long as there are at least two transmission lines in service and two circuits through the SATs to the Class 1E buses, the LCO is met.

During MODES 5 and 6, the Class 1E buses can be energized from the offsite transmission network via a combination of the main transformers and unit auxiliary transformers. This arrangement may be used to satisfy the requirement of one physically independent circuit.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss-of-offsite power and single failure of the other onsite A.C. source. The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. There are additional ACTION requirements to verify that all required feature(s) that depend on the remaining OPERABLE A.C. sources as a source of emergency power, are also OPERABLE. These requirements allow a period of time to restore any required feature discovered to be inoperable, e.g. out-of-service for maintenance, to an OPERABLE status. If the required feature(s) cannot be restored to an OPERABLE status, the ACTION statement requires the redundant required feature, i.e. feature receiving power from an inoperable A.C. source, to be declared inoperable. The allowed operating times to restore an inoperable required feature to an OPERABLE status is based on the requirements in NUREG 1431. The term "verify", as used in these ACTION statements means to administratively check by examining logs or other information to determine the OPERABILITY of required feature(s). It does not mean to perform the Surveillance Requirement needed to demonstrate the OPERABILITY of the required feature(s).

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that: (1) the facility can be maintained in the shutdown or refueling condition for extended time periods, and (2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are based upon the recommendations of Regulatory Guides 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," December 1979; 1.108, "Periodic Testing of Diesel

The surveillance frequencies are controlled in the Surveillance Frequency Control Program.

Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977 as modified in accordance with the guidance of IE Notice 85-32, April 22, 1985; and 1.137, "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979. Proper shedding and sequencing of loads are required functions for Emergency Diesel Generator OPERABILITY. Pressure testing of the diesel generator fuel oil piping at 110% of the system design pressure will only be required on the isolable portions of (1) fuel oil transfer pump discharge piping to the day tank, (2) fuel oil supply from the day tank to the diesel vendor-supplied piping, and (3) fuel oil return piping from the diesel vendor-supplied piping to the day tank regulator valve. The exemptions allowed by ASME Code Section XI will be invoked for the atmospheric day tanks and non-isolable piping.

The inclusion of the loss of generator potential transformer circuit lockout trip is a design feature based upon coincident logic and is an anticipatory trip prior to diesel generator overspeed. In TS 4.8.1.1.2.f.13, the phrase "all diesel generator trips" refers to automatic protective trips.

The Surveillance Requirements for demonstrating the OPERABILITY of the station batteries are based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations." The performance test supporting the Surveillance Requirement incorporates the guidance of IEEE Std 450-2010.

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, connection resistance values, and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates, and compares the battery capacity at that time with the rated capacity.

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage, and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to 7 days. During this 7-day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

LCOs 3.8.3.1 and 3.8.3.2 include requirements for energizing 118 VAC vital buses from the associated inverters connected to 125 VDC buses. In the event the 118 VAC vital buses are not energized by the inverters connected to the 125 VDC buses, system design provides for

The surveillance frequency is controlled under the Surveillance Frequency Control Program.

3/4.9.12 FUEL HANDLING BUILDING EMERGENCY EXHAUST SYSTEM

The limitations on the Fuel Handling Building Emergency Exhaust System ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. ~~Operation of the system with the heaters operating for at least 10 continuous hours in a 31 day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters.~~ The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing. Criteria for laboratory testing of charcoal and for in-place testing of HEPA filters and charcoal adsorbers is based upon removal efficiencies of 95% for organic and elemental forms of radioiodine and 99% for particulate forms. The filter pressure drop was chosen to be half-way between the estimated clean and dirty pressure drops for these components. This assures the full functionality of the filters for a prolonged period, even at the Technical Specification limit.

The LCO is modified by a note allowing the Fuel Handling Building Emergency Exhaust System (FHBEES) ventilation boundary to be opened intermittently under administrative controls. For entry and exit through doors, the administrative control of opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for FHBEES isolation is indicated.

HNP-15-040

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1
DOCKET NO. 50-400 / RENEWED LICENSE NO. NPF-63

APPLICATION FOR TECHNICAL SPECIFICATION CHANGE REGARDING RISK-INFORMED JUSTIFICATION FOR THE RELOCATION OF SPECIFIC SURVEILLANCE FREQUENCY REQUIREMENTS TO A LICENSEE CONTROLLED PROGRAM

Enclosure 5

Proposed No Significant Hazards Consideration Determination
(3 Pages)

Shearon Harris Nuclear Power Plant, Unit 1
Docket No.50-400/Renewed License No. NPF-63

Application for Technical Specification Change Regarding Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program

Proposed No Significant Hazards Consideration Determination

1.0 DESCRIPTION OF AMENDMENT REQUEST

The proposed change requests the adoption of an approved change to the standard technical specifications (STS) for Westinghouse Plants (NUREG-1431), to allow relocation of specific TS surveillance frequencies to a licensee-controlled program. The proposed change is described in Technical Specification Task Force (TSTF) Traveler 425, Revision 3 (ADAMS Accession No. ML090850642) related to the Relocation of Surveillance Frequencies to Licensee Control - RITSTF Initiative 5b and was described in the Notice of Availability published in the Federal Register on July 6, 2009 (74 FR 31996).

The proposed changes are consistent with NRC-approved Industry/Technical Specification Task Force (TSTF) Traveler 425, "Relocate Surveillance Frequencies to Licensee Control - RITSTF Initiative 5b," Revision 3. The proposed change relocates surveillance frequencies to a licensee-controlled program, the Surveillance Frequency Control Program (SFCP). This change is applicable to licensees using probabilistic risk guidelines contained in NRC-approved NEI 04-10, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," (ADAMS Accession No. 071360456).

2.0 BASIS FOR PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION

As required by 10 CFR 50.91(a), the Duke Energy analysis of the issue of no significant hazards consideration is presented below:

1. Does the proposed change involve a significant increase in the probability or consequences of any accident previously evaluated?

Response: No.

The proposed change relocates the specified frequencies for periodic surveillance requirements to licensee control under a new Surveillance Frequency Control Program. Surveillance frequencies are not an initiator to any accident previously evaluated. As a result, the probability of any accident previously evaluated is not significantly increased. The systems and components required by the technical specifications for which the surveillance frequencies are relocated are still required to be operable, meet the acceptance criteria for the surveillance requirements, and be capable of performing any mitigation function assumed in the accident analysis. As a result, the consequences of any accident previously evaluated are not significantly increased.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any previously evaluated?

Response: No.

No new or different accidents result from utilizing the proposed change. The changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions and current plant operating practice.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in the margin of safety?

Response: No.

The design, operation, testing methods, and acceptance criteria for systems, structures, and components (SSCs), specified in applicable codes and standards (or alternatives approved for use by the NRC) will continue to be met as described in the plant licensing basis (including the final safety analysis report and bases to TS), since these are not affected by changes to the surveillance frequencies. Similarly, there is no impact to safety analysis acceptance criteria as described in the plant licensing basis. To evaluate a change in the relocated surveillance frequency, Duke Energy will perform a probabilistic risk evaluation using the guidance contained in NRC approved NEI 04–10, Revision 1, in accordance with the TS SFCP. NEI 04–10, Revision 1, methodology provides reasonable acceptance guidelines and methods for evaluating the risk increase of proposed changes to surveillance frequencies consistent with Regulatory Guide 1.177.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based upon the reasoning presented above, Duke Energy concludes that the requested change does not involve a significant hazards consideration as set forth in 10 CFR 50.92(c), Issuance of Amendment.

HNP-15-040

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1
DOCKET NO. 50-400 / RENEWED LICENSE NO. NPF-63

APPLICATION FOR TECHNICAL SPECIFICATION CHANGE REGARDING RISK- INFORMED JUSTIFICATION FOR THE RELOCATION OF SPECIFIC SURVEILLANCE FREQUENCY REQUIREMENTS TO A LICENSEE CONTROLLED PROGRAM

Enclosure 6

Cross-Reference between HNP Technical Specifications and TSTF-425, Revision 3
(22 pages including cover)

Cross-Reference between Shearon Harris Nuclear Power Plant, Unit 1 (HNP) Technical Specifications and TSTF-425, Revision 3 (NUREG-1431 Mark-up)

For HNP plant-specific surveillances that do not have a corresponding surveillance included in the NUREG-1431 mark-ups provided in TSTF-425, Duke Energy evaluated these surveillance frequencies against the four exclusion criteria delineated in TSTF-425, Revision 3. The four criteria which exclude surveillance frequencies from being relocated are:

- Frequencies that reference other approved programs for the specific interval (such as the Inservice Testing Program or the Primary Containment Leakage Rate Testing Program)
- Frequencies that are purely event driven (e.g., "Each time the control rod is withdrawn to the 'full out' position")
- Frequencies that are event-driven but have a time component for performing the surveillance on a one-time basis once the event occurs (e.g. "within 24 hours after thermal power reaching ≥95%RTP");
- Frequencies that are related to specific conditions (e.g. battery degradation, age and capacity) or conditions for the performance of a surveillance requirement (e.g., "drywell to suppression chamber differential pressure decrease).

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.1.1.1 SHUTDOWN MARGIN – MODES 1 and 2		
4.1.1.1.1.b Verify control bank withdrawal within limits		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.1.1.1.2 Verify measured core reactivity within predicted value	3.1.2.1	
3.1.1.2 SHUTDOWN MARGIN – MODES 3, 4, and 5		
4.1.1.2.b Verify Shutdown Margin		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.1.2.1 Boration Systems – Flow Path – Shutdown		
4.1.2.1.b Verify boric acid flow path valve positions		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
3.1.2.2 Boration Systems – Flow Path - Operating		
4.1.2.2.b Verify boric acid flow path valve positions		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.1.2.2.c Verify boric acid flow path automatic valve actuation		
4.1.2.2.d Verify boric acid flow path flow rate		
3.1.2.3 Boration Systems – Charging Pump – Shutdown		
4.1.2.3.2 Demonstrate all but one charging/safety injection pumps inoperable	3.4.12.1 3.4.12.2	
3.1.2.5 Boration Systems – Borated Water Source – Shutdown		
4.1.2.5.a.1 Verify borated water source boron concentration		Requirements for Modes 5 and 6 were not specified in NUREG-1431, however similar changes for Modes 1 through 4 were done in TSTF-425 SR 3.5.4.2 and 3.5.4.3. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.1.2.5.a.2 Verify borated water source volume		
4.1.2.5.a.3 Verify boric acid tank solution temperature		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above..
4.1.2.5.b Verify RWST temperature	3.5.4.1	Requirements for Modes 5 and 6 were not specified in NUREG-1431. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.1.2.6 Boration Systems – Borated Water Source – Operating		
4.1.2.6.a.1 Verify borated water source boron concentration		Relocation of Frequencies is consistent with intent of TSTF-425. TSTF-425 SR 3.5.4.3 and 3.5.6.3 are not a direct correlation but contain similar actions and frequencies.
4.1.2.6.a.2 Verify borated water source volume		Relocation of Frequencies is consistent with intent of TSTF-425. TSTF-425 SR 3.5.4.2 and 3.5.6.2 are not a direct correlation but contain similar actions and frequencies.
4.1.2.6.a.3 Verify boric acid tank solution temperature		Relocation of Frequencies is consistent with intent of TSTF-425. TSTF-425 SR 3.5.4.1 and 3.5.6.1 are not a direct correlation but contain similar actions and frequencies.
4.1.2.6.b Verify RWST temperature	3.5.4.1	
3.1.3.1 Movable Control Assemblies – Group Height		
4.1.3.1.1 Verify individual rod position within group demand limit	3.1.4.1	
4.1.3.1.2 Verify rod freedom of movement	3.1.4.2	
3.1.3.2 Position Indication Systems – Operating		
4.1.3.2 Verify Demand Position Indication System and Digital Rod Position Indication System agree		Note, this not applied to NUREG-1431 SR 3.1.7.1 due to event-driven Frequency. Relocation of HNP frequency, specified as 12 hours, is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.1.3.3 Position Indication Systems – Shutdown		
4.1.3.3 Verify digital rod position indicators agree with the demand position indicators		Note not applied to NUREG-1431 SR 3.1.7.1 due to event-driven Frequency Relocation of HNP frequency, specified as 18 months, is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.
3.1.3.4 Rod Drop Time		
		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
3.1.3.5 Shutdown Rod Insertion Limit		
4.1.3.5 Verify each shutdown rod fully withdrawn	3.1.5.1	
3.1.3.6 Control Rod Insertion Limits		
4.1.3.6 Verify each control bank within insertion limits	3.1.6.2	
3.2.1 Axial Flux Difference	3.2.3A	
4.2.1.1.a Verify AFD with AFD Monitor Alarm Operable	3.2.3.1	NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.2.1.3 Determine target AFD		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
3.2.2 Heat Flux Hot Channel Factor (FQ(Z))		
4.2.2.2.d.2 Verify measured values of $F_Q(Z)$	3.2.1.1	
3.2.3 Nuclear Enthalpy Rise Hot Channel Factor		
4.2.3.2 Verify $F^N_{\Delta H}$	3.2.2.1	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.2.4 Quadrant Power Tilt Ratio		
4.2.4.1.a Verify QPTR by calculation with alarm Operable	3.2.4.1	
4.2.4.2 Verify QPTR using movable incore detectors	3.2.4.2	
3.2.5 DNB Parameters		
4.2.5.1 Verify RCS Tavg, Pressurizer pressure, and RCS total flow rate.	3.4.1.1 3.4.1.2 3.4.1.3	
4.2.5.2 Verify RCS total flow rate by precision heat balance	3.4.1.4	
3.3.1 Reactor Trip System Instrumentation		
4.3.1.1, Table 4.3-1 Channel Check (Shiftly)	3.3.1.1	
4.3.1.1, Table 4.3-1 Channel Calibration (Daily)	3.3.1.2	
4.3.1.1, Table 4.3-1 Channel Calibration (Monthly)	3.3.1.3	
4.3.1.1, Table 4.3-1 Channel Calibration (Quarterly)		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.3.1.1, Table 4.3-1 Channel Calibration (Refueling)	3.3.1.10 3.3.1.12	
4.3.1.1, Table 4.3-1 Analog Channel Operational Test (Quarterly)	3.3.1.7 3.3.1.8	
4.3.1.1, Table 4.3-1 Analog Channel Operational Test (Refueling)	3.3.1.13	
4.3.1.1, Table 4.3-1 Trip Actuating Device Operational Test (Refueling)	3.3.1.14	
4.3.1.1, Table 4.3-1 Trip Actuating Device Operational Test (Quarterly)	3.3.1.9	
4.3.1.1, Table 4.3-1 Trip Actuating Device Operational Test (Monthly)	3.3.1.4	
4.3.1.1, Table 4.3-1 Actuation Logic Test (Monthly)	3.3.1.5	
4.3.1.2 Verify Reactor Trip System Response Time	3.3.1.16	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.3.2 Engineered Safety Features Actuation System Instrumentation		
4.3.2.1, Table 4.3-2 Channel Check (Shiftly)	3.3.2.1	
4.3.2.1, Table 4.3-2 Channel Calibration (Refueling)	3.3.2.9 3.3.5.3	
4.3.2.1, Table 4.3-2 Analog Channel Operational Test (Quarterly)	3.3.2.5	
4.3.2.1, Table 4.3-2 Trip Actuating Device Operational Test (Monthly)	3.3.2.7	
4.3.2.1, Table 4.3-2 Trip Actuating Device Operational Test (Refueling)	3.3.2.8	
4.3.2.1, Table 4.3-2 Actuation Logic Test (Monthly)	3.3.2.2 3.3.2.3 3.3.5.2	
4.3.2.1, Table 4.3-2 Master Relay Test (Monthly)	3.3.2.4	
4.3.2.1, Table 4.3-2 Slave Relay Test (Quarterly)	3.3.2.6	
4.3.2.1, Table 4.3-2 Slave Relay Test (Refueling)		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.3.2.2 Verify ESFAS Response Times	3.3.2.10	
3.3.3.1 Radiation Monitoring for Plant Operations		
4.3.3.1, Table 4.3-3 Channel Check (Shiftly)	3.3.6.1 3.3.7.1 3.3.8.1 3.4.15.1	
4.3.3.1, Table 4.3-3 Channel Calibration (Refueling)	3.3.6.9 3.3.7.9 3.3.8.5 3.4.15.3 3.4.15.4	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
4.3.3.1, Table 4.3-3 Digital Channel Operational Test (Quarterly)	3.3.6.6 3.3.7.2 3.3.8.2 3.4.15.2	
3.3.4.5.a Remote Shutdown System		
4.3.3.5.1, Table 4.3-6 Channel Check (Monthly)	3.3.4.1	
4.3.3.5.1, Table 4.3-6 Channel Calibration (Refueling)	3.3.4.3	
4.3.3.5.2 Verify control circuit and transfer switch capable of function	3.3.4.2	
3.3.3.6 Accident Monitor Instrumentation		
4.3.3.6, Table 4.3-7 Channel Check (Monthly)	3.3.3.1	
4.3.3.6, Table 4.3-7 Calibration (Refueling)	3.3.3.2	
3.4.1.1 Reactor Coolant Loops and Coolant Circulation – Startup and Power Operation		
4.4.1.1 Verify RCS loops in operation	3.4.4.1	
3.4.1.2 Reactor Coolant Loops and Coolant Circulation – Hot Standby		
4.4.1.2.1 Verify correct breaker alignment	3.4.5.3	
4.4.1.2.2 Verify Steam generator secondary side water levels	3.4.5.2	
4.4.1.2.3 Verify required RCS loops in operation	3.4.5.1	
3.4.1.3 Reactor Coolant Loops and Coolant Circulation – Hot Shutdown		
4.4.1.3.1 Verify correct breaker alignment	3.4.6.3	
4.4.1.3.2 Verify SG secondary side water level	3.4.6.2	
4.4.1.3.3 Verify required RHR or RCS loop operation	3.4.6.1	
3.4.1.4.1 Reactor Coolant Loops and Coolant Circulation – Cold Shutdown – Loops Filled		
4.4.1.4.1.1 Verify SG secondary side water level	3.4.7.1	
4.4.1.4.1.2 Verify required RHR loop operation	3.4.7.2	
3.4.1.4.2 Reactor Coolant Loops and Coolant Circulation – Cold Shutdown – Loops Not Filled		
4.4.1.4.2 Verify required RHR loop operation	3.4.8.1	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.4.3 Pressurizer		
4.4.3.1 Verify pressurizer water level	3.4.9.1	
4.4.3.2.c Verify pressurizer heater group capacity	3.4.9.2	
3.4.4 Relief Valves		
4.4.4.1.a Channel Calibration of actuation instrumentation		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.4.4.1.b Perform cycle of PORV	3.4.11.2	
4.4.4.2 Perform cycle of block valve	3.4.11.1	
4.4.4.3 Demonstrate accumulator Operable		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
3.4.6.1 Reactor Coolant System Leakage – Leakage Detection Systems		
4.4.6.1.a, Table 4.3-3 Channel Check (radioactivity monitor)	3.4.15.1	
4.4.6.1.a, Table 4.3-3 Digital Channel Operational Test (airborne and particulate radioactivity monitors)	3.4.15.2	
4.4.6.1.a, Table 4.3-3 Channel Calibration (airborne and particulate radioactivity monitor)	3.4.15.4	
4.4.6.1.b Channel Calibration (Reactor Cavity Sump Level and Flow Monitoring System)	3.4.15.3	
3.4.6.2 Reactor Coolant System Operational Leakage		
4.4.6.2.1.a Monitor containment airborne gaseous or particulate radioactivity monitor	3.4.15.1	
4.4.6.2.1.b Monitor containment sump inventory and Flow Monitoring System		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
4.4.6.2.1.c Measure controlled leakage to reactor coolant pump seals	3.5.5.1	
4.4.6.2.1.d Verify RCS operational leakage	3.4.13.1	
4.4.6.2.1.e Monitor Reactor Head Flange Leakoff System		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.4.6.2.2.a Verify PIV leakage	3.4.14.1	
4.4.6.2.3 Verify primary to secondary leakage	3.4.13.2	
3.4.7 Reactor Coolant System Chemistry		
4.4.7, Table 4.4-3 sample Dissolve Oxygen		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.4.7, Table 4.4-3 sample Chloride		
4.4.7, Table 4.4-3 sample Fluoride		
3.4.8 Reactor Coolant System Specific Activity		
4.4.8, Table 4.4-4 Verify gross specific activity	3.4.16.1	
4.4.8, Table 4.4-4 Verify Dose Equivalent I-131	3.4.16.2	
4.4.8, Table 4.4-4 Determine $\bar{E}$	3.4.16.3	
3.4.9.1 Pressure/Temperature Limits – Reactor Coolant System		
4.4.9.1 Verify RCS pressure, temperature, and heatup and cooldown rates	3.4.3.1	
3.4.9.2 Pressure/Temperature Limits – Reactor Coolant System		
4.4.9.2.1 Verify RCS pressure, temperature, and heatup and cooldown rates	3.4.3.1	
3.4.9.4 Reactor Coolant System Overpressure Protection System	**3.4.12**	
4.4.9.4.1.a Perform Analog Channel Operational Test	3.4.12.8	
4.4.9.4.1.b Perform Channel Calibration	3.4.12.9	
4.4.9.4.1.c Verify PORV isolation valve open	3.4.12.6	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
4.4.9.4.2 Verify required vent open	3.4.12.5	
3.4.11 Reactor Coolant System Vents		
4.4.11.2.a Verify manual isolation valve position		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.4.11.2.b Cycle each vent path valve		
4.4.11.2.c Verify flow through vent path		
3.5.1 Accumulators – Cold Leg Injection		
4.5.1.1.a.1 Verify borated water volume and nitrogen cover pressure	3.5.1.2 3.5.1.3	
4.5.1.1.a.2 Verify accumulator isolation valves open	3.5.1.1	
4.5.1.1.b Verify boron concentration	3.5.1.4	
4.5.1.1.c Verify isolation valve operator power removed	3.5.1.5	
3.5.2 ECCS – T_{avg} Greater Than or Equal to 350°F		
4.5.2.a.1 Verify valves in correct position with power removed	3.5.2.1	
4.5.2.b.1 Verify ECCS piping is full	3.5.2.3	
4.5.2.b.2 Verify ECCS valve position	3.5.2.2	
4.5.2.d.1 Verify RHR System automatic interlock function	3.4.14.2	
4.5.2.d.2 Verify sump suction strainers	3.5.2.8	
4.5.2.e.1 Verify ECCS automatic valves actuate automatically	3.5.2.5	
4.5.2.e.2 Verify ECCS pumps start automatically	3.5.2.6	
4.5.2.g.2 Verify ECCS throttle valve stop position	3.5.2.7	
3.5.4 Refueling Water Storage Tank		
4.5.4.a.1 Verify RWST water volume	3.5.4.2	
4.5.4.a.2 Verify RWST boron concentration	3.5.4.3	
4.5.4.b Verify RWST water temperature	3.5.4.1	
3.6.1.1 Primary Containment – Containment Integrity	**3.6.1.1**	
4.6.1.1.a Verify all penetrations not capable of automatic isolation is isolated	3.6.3.3	
3.6.1.3 Containment Air Locks		
4.6.1.3 Verify only one door can be opened at a time	3.6.2.2	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.6.1.4 Containment Systems – Internal Pressure		
4.6.1.4 Verify containment pressure	3.6.4A.1	
3.6.1.5 Containment Systems – Air Temperature		
4.6.1.5 Verify containment air temperature	3.6.5A.1	
3.6.1.7 Containment Systems – Containment Ventilation Systems		
4.6.1.7.1 Verify each 42-inch purge makeup and exhaust valve sealed closed and closed	3.6.3.1	
4.6.1.7.2 Perform leakage rate testing on each containment purge valve (2-42 inch valves and 2-8 inch valves)	3.6.3.7	
3.6.2.1 Containment Spray System		
4.6.2.1.a Verify each containment spray valve in correct position	3.6.6A.1	
4.6.2.1.c.1 Verify automatic containment spray valves actuate	3.6.6A.5	
4.6.2.1.c.2 Verify containment spray pumps automatically start	3.3.6A.6	
4.6.2.1.c.3 Verify automatic valves from sump and RWST actuate to correct position	3.6.6A.5	
4.6.2.1.d Verify spray nozzles unobstructed	3.6.6A.8	
3.6.2.2 Spray Additive System		
4.6.2.2.a Verify spray additive valves in correct position	3.6.7.1	
4.6.2.2.b.1 Verify spray additive tank solution volume	3.6.7.2	
4.6.2.2.b.2 Verify spray additive tank solution concentration	3.6.7.3	
4.6.2.2.c Verify automatic spray additive valves actuate	3.6.7.4	
4.6.2.2.d Verify spray additive flow rate	3.6.7.5	
3.6.2.3 Containment Cooling System		
4.6.2.3.a.1 Operate containment cooling train fan	3.6.6A.2	
4.6.2.3.a.2 Verify containment cooling train cooling water flow	3.6.6A.3	
4.6.2.3.b Verify containment cooling trains automatically start	3.6.6A.7	
3.6.3 Containment Isolation Valves		
4.6.3.2.a Verify 'Phase A' automatic containment isolation valves actuate	3.6.3.8	
4.6.3.2.b Verify 'Phase B' automatic containment isolation valves actuate	3.6.3.8	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
4.6.3.2.c Verify purge makeup and exhaust. and containment vacuum relief valves actuate	3.6.3.8	
4.6.3.2.d Verify automatic containment isolation valves receiving an 'S' signal actuate	3.6.3.8	
4.6.3.2.e Verify Main Steam Isolation Valves actuate	3.7.2.2	
4.6.3.2.f Verify Main Feedwater Isolation Valves actuate	3.7.3.2	
3.7.1.2 Auxiliary Feedwater System		
4.7.1.2.1.a.1 Demonstrate each motor-driven pump satisfies performance requirements		Note not applied to NUREG-1431, SR 3.7.5.2 because Frequency is "In accordance with the Inservice Test Program." HNP Frequency is "At least once per 92 days on a STAGGERED TEST BASIS." Relocation of this frequency is consistent with the intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.7.1.2.1.a.2 Demonstrate turbine-driven pump satisfies performance requirements		
4.7.1.2.1.b.1 Verify AFW valves in correct position	3.7.5.1	
4.7.1.2.1.b.2 Verify CST suction isolation valves open	3.7.5.1	
4.7.1.2.1.c.3 Verify AFW automatic valves automatically actuate	3.7.5.3	
4.7.1.2.1.c.1 Verify motor-driven AFW pumps start automatically	3.7.5.4	
4.7.1.2.1.c.2 Verify turbine-driven AFW pump starts automatically	3.7.5.4	
3.7.1.3 Condensate Storage Tank (CST)		
4.7.1.3.1 Verify CST level	3.7.6.1	
4.7.1.3.2 Verify each Emergency Service Water Valve supplying AFW is open	3.7.8.1	
3.7.1.4 Plant Systems – Specific Activity		
4.7.1.4 Table 4.7-1 Gross Radioactivity Determination or Isotropic Analysis for Dose Equivalent I-131	3.7.18.1	
4.7.1.4 Table 4.7-1 Isotropic Analysis for Dose Equivalent I-131 (gross radioactivity indicates ≤ 10% of limit)	3.7.18.1	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.7.2 Steam Generator Pressure/Temperature Limitation		
4.7.2 Verify steam generator pressure		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.
3.7.3 Component Cooling Water		
4.7.3.a Verify CCW valves in correct position	3.7.7.1	
4.7.3.b.1 Verify automatic CCW valves automatically actuate	3.7.7.2	
4.7.3.b.2 Verify CCW pumps automatically start	3.7.7.3	
4.7.3.b.3 Verify each automatic valve serving gross failed fuel detector and sample system heat exchangers automatically actuates	3.7.7.2	
3.7.4 Emergency Service Water System		
4.7.4.a Verify each valve in correct position	3.7.8.1	
4.7.4.b.1 Verify each automatic valve automatically actuates	3.7.8.2	
4.7.4.b.2 Verify each emergency service water pump and each emergency service water booster pump automatically starts	3.7.8.3	
3.7.5 Ultimate Heat Sink (UHS)		
4.7.5 Verify UHS water temperature and water level	3.7.9.1 3.7.9.2	
3.7.6 Control Room Emergency Filtration System		
4.7.6.a Operate each train	3.7.10.1	
4.7.6.b.1 Verify cleanup system satisfies in-place penetration and bypass leakage testing acceptance criteria		Note not applied to NUREG-1431, SR 3.7.10.2 because Frequency is in accordance with the Ventilation Filter Testing Program (VFTP). HNP Frequency is "18 months." Relocation of these frequencies is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above
4.7.6.b.2 Verify methyl iodide penetration within limits		
4.7.6.d.1 Verify HEPA filter and charcoal adsorber pressure drop		
4.7.6.d.2 Verify system automatically actuates	3.7.10.3	
4.7.6.d.3 Verify system maintains positive pressure	3.7.10.4	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
4.7.6.d.4 Verify heater capacity		Note not applied to NUREG-1431, SR 3.7.10.2 because Frequency is in accordance with the Ventilation Filter Testing Program (VFTP). HNP Frequency is "18 months." Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above
3.7.7 Reactor Auxiliary Building (RAB) Emergency Exhaust System		
4.7.7.a Operate each train	3.7.12.1	
4.7.7.b.1 Verify cleanup system satisfies in-place penetration and bypass leakage testing acceptance criteria		Note not applied to NUREG-1431, SR 3.7.12.2 because Frequency is in accordance with the Ventilation Filter Testing Program (VFTP). HNP Frequency is "18 months." Relocation of these frequencies is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.7.7.b.2 Verify methyl iodide penetration within limits		
4.7.7.d.1 Verify HEPA filter and charcoal adsorber pressure drop		
4.7.7.d.2 Verify system automatically actuates	3.7.12.3	
4.7.7.d.3 Verify system maintains positive pressure	3.7.12.4	
4.7.7.d.4 Verify filter cooling bypass valve locked		NUREG-1431 does not specify a similar requirement. NUREG-1431, SR 3.7.12.5 requires verification that the filter bypass damper can be closed. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
4.7.7.d.5 Verify heater capacity		Note not applied to NUREG-1431, SR 3.7.12.2 because Frequency is in accordance with the Ventilation Filter Testing Program (VFTP). HNP Frequency is "18 months." Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above
3.7.13 Essential Services Chilled Water System		
4.7.13.1 Verify non-essential portions automatically isolate		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above
4.7.13.2 Verify systems starts automatically		
3.7.14 Fuel Storage Pool Boron Concentration		
4.7.14 Verify boron concentration	3.7.16.1	
3.8.1.1 AC Sources - Operating	**3.8.1**	
4.8.1.1.1.a Verify correct breaker alignment	3.8.1.1	
4.8.1.1.1.b Verify transfer of power from offsite circuit to alternate circuit	3.8.1.8	
4.8.1.1.2.a.1 Verify each day tank level	3.8.1.4	
4.8.1.1.2.a.2 Verify main fuel oil storage tank level	3.8.3.1	
4.8.1.1.2.a.3 Verify fuel oil transfer system operates	3.8.1.6	
4.8.1.1.2.a.4 Verify each DG starts from standby conditions/steady state	3.8.1.2	
4.8.1.1.2.a.5 Verify each DG is synchronized and loaded	3.8.1.3	
4.8.1.1.2.a.6 Verify air start receiver pressure	3.8.3.4	
4.8.1.1.2.a.7 Verify DG is aligned to associated emergency buses		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
4.8.1.1.2.b.1 Check for and remove accumulated water from day tank	3.8.1.5	
4.8.1.1.2.b.2 Check/remove accumulated water from fuel oil storage tank	3.8.3.5	
4.8.1.1.2.d Verify total particulate from sample of fuel oil storage tank		Note not applied to NUREG-1431, SR 3.8.3.2 because Frequency is in accordance with the Diesel Fuel Oil Testing Program. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above
4.8.1.1.2.e Verify each DG starts from standby conditions/quick start	3.8.1.7	
4.8.1.1.2.f.2 Verify DG rejects load ≥ 1078 KW, stabilizes without tripping any safety-related load		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above
4.8.1.1.2.f.3 Verify interval between each timed load block	3.8.1.18	
4.8.1.1.2.f.4 Verify on loss of offsite power signal, de-energization, load shedding and auto-start	3.8.1.11	
4.8.1.1.2.f.5 Verify DG starts on safety injection test signal	3.8.1.12	
4.8.1.1.2.f.6 Verify on LOOP in conjunction with ECCS initiation signal	3.8.1.19	
4.8.1.1.2.f.7 Verify each DG operates for > 24 hours	3.8.1.14	
4.8.1.1.2.f.9 Verify DG capability to synchronize with offsite power, transfer loads to offsite power and proceed through shutdown sequence	3.8.1.16	
4.8.1.1.2.f.11 Verify DG rejects load between 6200 and 6400 KW	3.8.1.9 3.8.1.10	
4.8.1.1.2.f.12 Verify ECCS initiation signal overrides test mode	3.8.1.17	
4.8.1.1.2.f.13 Verify DG automatic trips bypassed on ECCS initiation signal	3.8.1.13	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
4.8.1.1.2.f.14 Verify each DG starts from standby conditions/quick restart	3.8.1.15	
4.8.1.1.2.g Verify simultaneous DG starts	3.8.1.20	
4.8.1.1.2.h.1 Drain each main fuel oil storage tank, remove sediment and clean		Note not applied to NUREG-1431, SR 3.8.3.2 because Frequency is in accordance with the Diesel Fuel Oil Testing Program. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above
4.8.1.1.2.h.2 Perform pressure test of diesel fuel oil piping		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above
3.8.2.1 DC Sources – Operating		
4.8.2.1.a.1 Verify parameters in Table 4.8-2 meet Category A limits		HNP has not incorporated generic change TSTF-360, 'DC Electrical rewrite.' TSTF-425 relocates the frequencies of many of the DC Sources – Operating and Battery Parameter SRs. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above
4.8.2.1.a.2 Verify total battery terminal voltage		
4.8.2.1.b.1 Verify parameters in Table 4.8-2 meet Category B limits		
4.8.2.1.b.2 Verify no visible corrosion at terminals and connectors		
4.8.2.1.b.3 Verify average electrolyte temperature of 10 connected cells		
4.8.2.1.c.1 Verify cells, cell plates and racks show no physical damage		
4.8.2.1.c.2 Verify cell-to-cell and terminal connections clean and tight		
4.8.2.1.c.3 Verify resistance of cell-to-cell and terminal connections		
4.8.2.1.c.4 Verify battery charger capacity	3.8.4.2	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
4.8.2.1.d Verify battery capacity is adequate to maintain emergency loads	3.8.4.3	
4.8.2.1.e Verify battery capacity during performance discharge test	3.8.6.6	
3.8.3.1 Onsite Power Distribution - Operating		
4.8.3.1 Verify correct breaker alignment/power to distribution subsystems and indicated voltage	3.8.9.1 3.8.7.1	
3.8.3.2 Onsite Power Distribution - Shutdown	**3.8.10**	
4.8.3.2 Verify correct breaker alignment/power to distribution subsystems and indicated voltage	3.8.10.1 3.8.8.1	
3.8.4.1 Containment Penetration Conductor Overcurrent Protective Devices		
4.8.4.1.a.1.a Channel Calibration of protective relays		Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.8.4.1.a.1.b System functional test		
4.8.4.1.a.2 Functionally testing representative sample		
4.8.4.1.b Subject each breaker to inspection and preventative maintenance		
3.8.4.2 Motor-Operated Valves Thermal Overload Protection		
4.8.4.2.a Perform Trip Actuation Device Operational Test		Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above
3.9.1.a Boron Concentration		
4.9.1.1 Verify boron concentration	3.9.1.1	
4.9.1.2 Verify valves closed	3.9.2.1	
3.9.2 Refueling Operations – Instrumentation		
4.9.2.a Channel Check	3.9.3.1	
4.9.2.b Channel Calibration	3.9.3.2	
3.9.4 Containment Building Penetrations		
4.9.4.a Verify each containment penetration in required status	3.9.4.1	
4.9.4.b Verify containment purge and containment pre-entry purge makeup and exhaust valve automatically actuate	3.9.4.2	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.9.8.1 Residual Heat Removal and Coolant Circulation – High Water Level		
4.9.8.1 Verify one RHR loop	3.9.5.1	
3.9.8.2 Residual Heat Removal and Coolant Circulation – Low Water Level		
4.9.8.2.1 Verify one RHR loop and flow rate with level at or above vessel flange	3.9.6.1	
4.9.8.2.2 Verify one RHR loop and flow rate with level below vessel flange		
3.9.9 Containment Ventilation Isolation System		
4.9.9 Verify automatic isolation on actuation signal and ability to close from control switch	3.3.6.4 3.3.6.6	
3.9.10 Water Level – Reactor Vessel		
4.9.10 Verify water level	3.9.7.1	
3.9.11 Water Level – New and Spent Fuel Pools		
4.9.11 Verify water level	3.7.15.1	
3.9.12 Fuel Handling Building Emergency Exhaust System		
4.9.12.a Operate each train	3.7.13.1	
4.9.12.b.1 Verify cleanup system satisfies in-place penetration and bypass leakage testing acceptance criteria		Note not applied to NUREG-1431, SR 3.7.13.2 because Frequency is in accordance with the Ventilation Filter Testing Program (VFTP). HNP Frequency is "18 months." Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.9.12.b.2 Verify methyl iodide penetration within limits		
4.9.12.d.1 Verify HEPA filter and charcoal adsorber pressure drop		
4.9.12.d.2 Verify system automatically actuates	3.7.13.3	
4.9.12.d.3 Verify system maintains negative pressure	3.7.13.4	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
4.9.12.d.5 Verify heater capacity		Note not applied to NUREG-1431, SR 3.7.13.2 because Frequency is in accordance with the Ventilation Filter Testing Program (VFTP). HNP Frequency is "18 months." Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.
3.10.1 Special Test Exceptions – Shutdown Margin		
4.10.1.1 Verify position of shutdown and control rods		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.
3.10.2 Special Test Exceptions – Group Height, Insertion, and Power Distribution Limits		
4.10.2.1 Verify Thermal Power level ≤85%		NUREG-1431 does not specify a similar requirement. Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.
4.10.2.2.a Verify $F_Q(Z)$ within limits		
4.10.2.2.b Verify $F^N_{\Delta H}$ within limits		
3.10.3 Special Test Exceptions – Physics Tests		
4.10.3.1 Verify Thermal Power ≤ 5%	3.1.8.3	
4.10.3.3 Verify T_{avg}	3.1.8.2	
3.10.4 Special Test Exceptions – Reactor Coolant Loops		
4.10.4.1 Verify Thermal Power < P-7	3.4.19.1	

HNP TS Surveillance Requirement (SR)	Similar TSTF-425 SR Number	Discussion of Differences
3.10.5 Special Test Exceptions – Position Indication System – Shutdown		
4.10.5 Verify Demand Position Indication System and Digital Rod Position Indication System agree		Note not applied to NUREG-1431, SR 3.1.7.1, due to event-driven Frequency. HNP Frequency is "24 hours." Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.
3.11.2.5 Explosive Gas Mixture		
4.11.2.5 Verify hydrogen and oxygen in Gaseous Radwaste Treatment System within limits		These requirements are typically relocated to the Explosive Gas and Storage Tank Radioactivity Monitoring Program (NUREG-1431, 5.5.12) during ITS conversion. The HNP Frequency is "At least once per 12 hours." Relocation of this frequency is consistent with intent of TSTF-425 and does not qualify for the exclusions discussed above.
6.8.4.p Programs (Surveillance Frequency Control Program)	**5.5.18**	