Attachment 4 to W3F1-2015-0006

Revised Technical Specification Pages

(115 Pages Attached)

SITE BOUNDARY

1.29 The SITE BOUNDARY shall be that line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

SOFTWARE

1.30 The digital computer SOFTWARE for the reactor protection system shall be the program codes including their associated data, documentation, and procedures.

1.31 Definition 1.31 has been deleted.

SOURCE CHECK

1.32 A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a source of increased radioactivity.

1.33 Definition 1.33 has been deleted.

THERMAL POWER

1.34 THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

UNIDENTIFIED LEAKAGE

1.35 UNIDENTIFIED LEAKAGE shall be all leakage which is not IDENTIFIED LEAKAGE or CONTROLLED LEAKAGE.

TABLE 1.1

FREQUENCY NOTATION

NOTATION	FREQUENCY
S	At least once per 12 hours.
D	At least once per 24 hours.
W	At least once per 7 days.
M	At least once per 31 days.
P	Completed prior to each release.
Q	At least once per 92 days.
SA	At least once per 184 days.
R	At least once per 18 months.
S/U	Prior to each reactor startup.
N.A.	Not applicable.
SFCP	Surveillance Frequency Control Program

3/4.1 REACTIVITY CONTROL SYSTEMS

3/4.1.1 BORATION CONTROL

SHUTDOWN MARGIN - ANY CEA WITHDRAWN

LIMITING CONDITION FOR OPERATION

3.1.1.1 The SHUTDOWN MARGIN shall be greater than or equal to that specified in the COLR.

APPLICABILITY: MODES 1, 2*, 3, 4, and 5 with any CEA fully or partially withdrawn.

ACTION:

With the SHUTDOWN MARGIN less than that specified in the COLR, immediately initiate boration to restore SHUTDOWN MARGIN to within limit.

SURVEILLANCE REQUIREMENTS

4.1.1.1.1 With any CEA fully or partially withdrawn, the SHUTDOWN MARGIN shall be determined to be greater than or equal to that specified in the COLR:

a. Within 1 hour after detection of an inoperable CEA(s) and at least once per 12 hours thereafter while the CEA(s) is inoperable. If the inoperable CEA is immovable or untrippable, the above required SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the immovable or untrippable CEA(s).

b. When in MODE 1 or MODE 2 with Keff greater than or equal to 1.0 by verifying that CEA group withdrawal is within the Transient Insertion Limits of Specification 3.1.3.6 in accordance with the Surveillance Frequency Control Program.

c. When in MODE 2 with Keff less than 1.0, within 4 hours prior to achieving reactor criticality by verifying that the predicted critical CEA position is within the limits of Specification 3.1.3.6.

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* See Special Test Exception 3.10.1.

SURVEILLANCE REQUIREMENTS (Continued)

d. Prior to initial operation above 5% RATED THERMAL POWER after each fuel loading, by consideration of the factors of e. below, with the CEA groups at the Transient Insertion Limits of Specification 3.1.3.6.

e. When in MODE 3, 4, or 5, in accordance with the Surveillance Frequency Control Program by consideration of at least the following factors:

1. Reactor Coolant System boron concentration,

2. CEA position,

3. Reactor Coolant System average temperature,

4. Fuel burnup based on gross thermal energy generation,

5. Xenon concentration, and

6. Samarium concentration.

4.1.1.1.2 The overall core reactivity balance shall be compared to predicted values to demonstrate agreement within ± 1.0% delta k/k in accordance with the Surveillance Frequency Control Program . This comparison shall consider at least those factors stated in Specification 4.1.1.1.1e., above. The predicted reactivity values shall be adjusted (normalized) to correspond to the actual core conditions prior to exceeding a fuel burnup of 60 EFPDs after each fuel loading.

SHUTDOWN MARGIN - ALL CEAS FULLY INSERTED

LIMITING CONDITION FOR OPERATION

3.1.1.2 The SHUTDOWN MARGIN shall be greater than or equal to that specified in the COLR.

APPLICABILITY: MODES 3, 4 and 5 with all CEAs fully inserted.

ACTION:

With the SHUTDOWN MARGIN less than that specified in the COLR, immediately initiate boration to restore SHUTDOWN MARGIN to within limit.

SURVEILLANCE REQUIREMENTS

4.1.1.2 With all CEAs fully inserted, the SHUTDOWN MARGIN shall be determined to be greater than or equal to that specified in the COLR, in accordance with the Surveillance Frequency Control Program by consideration of the following factors:

1. Reactor Coolant System boron concentration,
2. CEA position,
3. Reactor Coolant System average temperature,
4. Fuel burnup based on gross thermal energy generation,
5. Xenon concentration, and
6. Samarium concentration.

MINIMUM TEMPERATURE FOR CRITICALITY

LIMITING CONDITION FOR OPERATION

3.1.1.4 The Reactor Coolant System lowest operating loop temperature (T_{cold}) shall be greater than or equal to 533°F.

APPLICABILITY: MODES 1 and 2#.

ACTION:

With a Reactor Coolant System operating loop temperature (T_{cold}) less than 533°F, restore T_{cold} to within its limit within 15 minutes or be in HOT STANDBY within the next 15 minutes.

SURVEILLANCE REQUIREMENTS

4.1.1.4 The Reactor Coolant System temperature (T_{cold}) shall be determined to be greater than or equal to 533°F in accordance with the Surveillance Frequency Control Program.

#With K_{eff} greater than or equal to 1.0.

3/4.1.2 BORATION SYSTEMS

FLOW PATHS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.1 As a minimum, one of the following boron injection flow paths shall be OPERABLE and capable of being powered from an OPERABLE emergency power source:

a. A flow path from the boric acid makeup tank via either a boric acid makeup pump or a gravity feed connection and any charging pump to the Reactor Coolant System if the boric acid makeup tank in Specification 3.1.2.7a. is OPERABLE, or

b. The flow path from the refueling water storage pool via either a charging pump or a high pressure safety injection pump to the Reactor Coolant System if the refueling water storage pool in Specification 3.1.2.7b. is OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

With none of the above flow paths OPERABLE or capable of being powered from an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.*

SURVEILLANCE REQUIREMENTS

4.1.2.1 At least one of the above required flow paths shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

* Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SHUTDOWN MARGIN.

FLOW PATHS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.2 At least two boron injection flow paths to the RCS via the charging pumps shall be OPERABLE. The following flow paths may be used:

a. With the contents of either boric acid makeup tank in accordance with Figure 3.1-1, the following flow paths shall be OPERABLE:

   1. One flow path from an acceptable boric acid makeup tank via its boric acid makeup pump; and

   2. One flow path from an acceptable boric acid makeup tank via its gravity feed valve; or

b. With the combined contents of both boric acid makeup tanks in accordance with Figure 3.1-2, both of the following flow paths shall be OPERABLE:

   1. One flow path consisting of both boric acid makeup pumps, and

   2. One flow path consisting of both gravity feed valves.

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

ACTION:

With only one of the above required boron injection flow paths to the Reactor Coolant System OPERABLE, restore at least two boron injection flow paths to the Reactor Coolant System to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to the requirements of Specification 3.1.1.1 or 3.1.1.2, whichever is applicable, within the next 6 hours; restore at least two flow paths to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.2 At least two of the above required flow paths shall be demonstrated OPERABLE:

a. By verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position in accordance with the Surveillance Frequency Control Program.

b. During shutdown by verifying that each automatic valve in the flow path actuates to its correct position on an SIAS test signal in accordance with the Surveillance Frequency Control Program.

c. By verifying that the flow path required by Specification 3.1.2.2a.1 and 3.1.2.2a.2 delivers at least 40 gpm to the Reactor Coolant System in accordance with the Surveillance Frequency Control Program.

CHARGING PUMPS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.4 At least two independent charging pumps shall be OPERABLE.

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

ACTION:

With only one charging pump OPERABLE, restore at least two charging pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to the requirements of Specification 3.1.1.1 or 3.1.1.2, whichever is applicable, within the next 6 hours; restore at least two charging pumps to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.4 Each required charging pump shall be demonstrated OPERABLE by verifying that each charging pump starts in response to an SIAS test signal in accordance with the Surveillance Frequency Control Program.

BORIC ACID MAKEUP PUMPS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.6 At least the boric acid makeup pump(s) in the boron injection flow path(s) required OPERABLE pursuant to Specification 3.1.2.2a. shall be OPERABLE and capable of being powered from an OPERABLE emergency bus if the flow path through the boric acid pump(s) in Specification 3.1.2.2a. is OPERABLE.
APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one boric acid makeup pump required for the boron injection flow path(s) pursuant to Specification 3.1.2.2a. inoperable, restore the boric acid makeup pump to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to the requirements of Specification 3.1.1.1 or 3.1.1.2, whichever is applicable, restore the above required boric acid makeup pump(s) to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.6 Each required boric acid makeup pump shall be demonstrated OPERABLE by verifying that each boric acid makeup pump starts in response to an SIAS test signal in accordance with the Surveillance Frequency Control Program.

BORATED WATER SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.7 As a minimum, one of the following borated water sources shall be OPERABLE:

a. One boric acid makeup tank with a boron concentration between 4900 ppm and 6125 ppm and a minimum borated water volume of 36% indicated level.

b. The refueling water storage pool (RWSP) with:

    1. A minimum contained borated water volume of 12% indicated level, and

    2. A minimum boron concentration of 2050 ppm.

APPLICABILITY: MODES 5 and 6.

ACTION:

With no borated water sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes. *

SURVEILLANCE REQUIREMENTS

4.1.2.7 The above required borated water source shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program when the Reactor Auxiliary Building air temperature is less than 55°F by verifying the boric acid makeup tank solution is greater than or equal to 60°F (when it is the source of borated water).

b. In accordance with the Surveillance Frequency Control Program by:

    1. Verifying the boron concentration of the water, and

    2. Verifying the contained borated water volume of the tank.

* Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SHUTDOWN MARGIN.

BORATED WATER SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.8 Each of the following borated water sources shall be OPERABLE:

a. At least one of the following sources:

1) One boric acid makeup tank, with the tank contents in accordance with Figure 3.1-1, or

2) Two boric acid makeup tanks, with the combined contents of the tanks in accordance with Figure 3.1-2, and

b. The refueling water storage pool in accordance with Specification 3.5.4.

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

ACTION:

a. With the above required boric acid makeup tank(s) inoperable, restore the tank(s) to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to the requirements of Specification 3.1.1.1 or 3.1.1.2, whichever is applicable; restore the above required boric acid makeup tank(s) to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

b. With the refueling water storage pool inoperable, restore the pool to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.8 Each borated water source shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying the boric acid makeup tank solution temperature is greater than or equal to 60°F when the Reactor Auxiliary Building air temperature is less than 55°F.

b. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the boron concentration in the water, and

2. Verifying the contained borated water volume of the water source.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.1.2.9.1 The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 from MODE 2.

4.1.2.9.2 Each required boron dilution alarm shall be demonstrated OPERABLE by the performance of a CHANNEL CHECK in accordance with the Surveillance Frequency Control Program, a CHANNEL FUNCTIONAL TEST in accordance with the Surveillance Frequency Control Program, and a CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program .

4.1.2.9.3 If the primary makeup water flow path to the Reactor Coolant System is isolated to fulfill 3.1.2.9.b, the required primary makeup water flow path to the Reactor Coolant System shall be verified to be isolated by either locked closed manual valves, deactivated automatic valves secured in the isolation position, or by power being removed from all charging pumps, at least once per 24 hours.

4.1.2.9.4 The requirements of Specification 3.1.2.9.a.2 or 3.1.2.9.b.2 shall be verified in accordance with the Surveillance Frequency Control Program .

4.1.2.9.5 Each required boron dilution alarm setpoint shall be adjusted to less than or equal to the existing neutron flux (cps) multiplied by the value specified in the COLR, at the frequencies specified in the COLR.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each CEA shall be determined to be within 7 inches (indicated position) of all other CEAs in its group in accordance with the Surveillance Frequency Control Program except during time intervals when one CEAC is inoperable or when both CEACs are inoperable, then verify the individual CEA positions .

4.1.3.1.2 Each CEA not fully inserted in the core shall be determined to be OPERABLE by movement of at least 5 inches in any one direction in accordance with the Surveillance Frequency Control Program .

POSITION INDICATOR CHANNELS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.3.2 At least two of the following three CEA position indicator channels shall be OPERABLE for each CEA:

a. CEA Reed Switch Position Transmitter (RSPT 1) with the capability of determining the absolute CEA positions within 5 inches,

b. CEA Reed Switch Position Transmitter (RSPT 2) with the capability of determining the absolute CEA positions within 5 inches, and

c. The CEA pulse counting position indicator channel.

APPLICABILITY: MODES 1 and 2.

ACTION:

With a maximum of one CEA per CEA group having only one of the above required CEA position indicator channels OPERABLE, within 6 hours either:

a. Restore the inoperable position indicator channel to OPERABLE status, or

b. Be in at least HOT STANDBY, or

c. Position the CEA group(s) with the inoperable position indicator(s) at its fully withdrawn position while maintaining the requirements of Specifications 3.1.3.1 and 3.1.3.6. Operation may then continue provided the CEA group(s) with the inoperable position indicator(s) is maintained fully withdrawn, except during surveillance testing pursuant to the requirements of Specification 4.1.3.1.2, and each CEA in the group(s) is verified fully withdrawn at least once per 12 hours thereafter by its "Full Out" limit.

SURVEILLANCE REQUIREMENTS

4.1.3.2 Each of the above required position indicator channels shall be determined to be OPERABLE by verifying that for the same CEA, the position indicator channels agree within 5 inches of each other in accordance with the Surveillance Frequency Control Program .

POSITION INDICATOR CHANNELS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.3.3 At least one CEA Reed Switch Position Transmitter indicator channel shall be OPERABLE for each CEA not fully inserted.

APPLICABILITY: MODES 3*, 4*, and 5*.

ACTION:

With less than the above required position indicator channel(s) OPERABLE, immediately open the reactor trip breakers.

SURVEILLANCE REQUIREMENTS

4.1.3.3 Each of the above required CEA Reed Switch Position Transmitter indicator channel(s) shall be determined to be OPERABLE by performance of a CHANNEL FUNCTIONAL TEST in accordance with the Surveillance Frequency Control Program. The provisions of Specification 4.0.4 are not applicable for performance of this surveillance testing.

*With the reactor trip breakers in the closed position.

SHUTDOWN CEA INSERTION LIMIT

LIMITING CONDITION FOR OPERATION

3.1.3.5 All shutdown CEAs shall be withdrawn to greater than or equal to 145 inches.

APPLICABILITY: MODES 1 and 2*#**.

ACTION:

With a maximum of one shutdown CEA withdrawn to less than 145 inches withdrawn, within 1 hour either:

a. Withdraw the CEA to greater than or equal to 145 inches, or

b. Declare the CEA inoperable and determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.5 Each shutdown CEA shall be determined to be withdrawn to greater than or equal to 145 inches withdrawn:

a. Within 15 minutes prior to withdrawal of any CEAs in regulating groups or group P during an approach to reactor criticality, and

b. In accordance with the Surveillance Frequency Control Program .

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*See Special Test Exception 3.10.2.

#With Keff greater than or equal to 1.0.

**Except for surveillance testing pursuant to Specification 4.1.3.1.2.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

c. With the regulating CEA groups or group P CEAs inserted between the Long Term Steady State Insertion Limits and the Transient Insertion Limits for intervals greater than 5 EFPD per 30 EFPD interval or greater than 14 EFPD per calendar year, either:

   1. Restore the regulating CEA groups or group P CEAs to within the Long Term Steady State Insertion Limits within two hours, or

   2. Be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.6 The position of each regulating CEA group and CEA group P shall be determined to be within the Transient Insertion Limits in accordance with the Surveillance Frequency Control Program except during time intervals when the PDIL Auctioneer Alarm Circuit is inoperable, then verify the individual CEA positions in accordance with the Surveillance Frequency Control Program. The accumulated times during which the regulating CEA groups or CEA group P are inserted beyond the Long Term Steady State Insertion Limits but within the Transient Insertion Limits shall be determined in accordance with the Surveillance Frequency Control Program.

LIMITING CONDITION FOR OPERATION

(COLSS) or, with the COLSS out of service, by verifying in accordance with the Surveillance Frequency Control Program that the linear heat rate, as indicated on any OPERABLE Local Power Density channel, is within the limits specified in the COLR.

4.2.1.3 In accordance with the Surveillance Frequency Control Program, the COLSS Margin Alarm shall be verified to actuate at a THERMAL POWER level less than or equal to the core power operating limit based on kW/ft.

3/4.2.2 PLANAR RADIAL PEAKING FACTORS - F_{xy}

LIMITING CONDITION FOR OPERATION

3.2.2 The measured PLANAR RADIAL PEAKING FACTORS (F^m_{xy}) shall be less than or equal to the PLANAR RADIAL PEAKING FACTORS (F^c_{xy}) used in the Core Operating Limit Supervisory System (COLSS) and in the Core Protection Calculators (CPC).

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER.*

ACTION:

With a F^m_{xy} exceeding a corresponding F^c_{xy}, within 6 hours either:

a. Adjust the CPC addressable constants to increase the multiplier applied to planar radial peaking by a factor equivalent to greater than or equal to F^m_{xy}/F^c_{xy} and restrict subsequent operation so that a margin to the COLSS operating limits of at least $[F^m_{xy}/F^c_{xy}) - 1.0]$ x 100% is maintained; or

b. Adjust the affected PLANAR RADIAL PEAKING FACTORS (F^c_{xy}) used in the COLSS and CPC to a value greater than or equal to the measured PLANAR RADIAL PEAKING FACTORS (F^m_{xy}) or

c. Be in at least HOT STANDBY.

SURVEILLANCE REQUIREMENTS

4.2.2.1 The provisions of Specification 4.0.4 are not applicable.

4.2.2.2 The measured PLANAR RADIAL PEAKING FACTORS (F^m_{xy}) obtained by using the incore detection system, shall be determined to be less than or equal to the PLANAR RADIAL PEAKING FACTORS (F^c_{xy}), used in the COLSS and CPC at the following intervals:

a. After each fuel loading with THERMAL POWER greater than 40% but prior to operation above 70% of RATED THERMAL POWER, and

b. In accordance with the Surveillance Frequency Control Program.

*See Special Test Exception 3.10.2.

SURVEILLANCE REQUIREMENTS

4.2.3.1 The provisions of Specification 4.0.4 are not applicable.

4.2.3.2 The AZIMUTHAL POWER TILT shall be determined to be within the limit above 20% of RATED THERMAL POWER by:

a. Continuously monitoring the tilt with COLSS when the COLSS is OPERABLE.

b. Calculating the tilt in accordance with the Surveillance Frequency Control Program when the COLSS is inoperable.

c. Verifying in accordance with the Surveillance Frequency Control Program, that the COLSS Azimuthal Tilt Alarm is actuated at an AZIMUTHAL POWER TILT greater than the AZIMUTHAL POWER TILT Allowance used in the CPCs.

d. Using the incore detectors in accordance with the Surveillance Frequency Control Program to independently confirm the validity of the COLSS calculated AZIMUTHAL POWER TILT.

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS

4.2.4.1 The provisions of Specification 4.0.4 are not applicable.

4.2.4.2 The DNBR shall be determined to be within its limits when THERMAL POWER is above 20% of RATED THERMAL POWER by continuously monitoring the core power distribution with the Core Operating Limit Supervisory System (COLSS) or, with the COLSS out of service, by verifying in accordance with the Surveillance Frequency Control Program that the DNBR, as indicated on any OPERABLE DNBR channel, is within the limit specified in the COLR.

4.2.4.3 In accordance with the Surveillance Frequency Control Program, the COLSS Margin Alarm shall be verified to actuate at a THERMAL POWER level less than or equal to the core power operating limit based on DNBR.

POWER DISTRIBUTION LIMITS

3/4.2.5 RCS FLOW RATE

LIMITING CONDITION FOR OPERATION

3.2.5 The actual Reactor Coolant System total flow rate shall be greater than or equal to 148.0 x 10^6 lbm/h.

APPLICABILITY: MODE 1.

ACTION:

With the actual Reactor Coolant System total flow rate determined to be less than the above limit, reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.5 The actual Reactor Coolant System total flow rate shall be determined to be greater than or equal to the above limit in accordance with the Surveillance Frequency Control Program.

3/4.2.6 REACTOR COOLANT COLD LEG TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.2.6 The reactor coolant cold leg temperature (T_c) shall be maintained between 536°F and 549°F.*

APPLICABILITY: MODE 1 above 30% of RATED THERMAL POWER.

ACTION:

With the reactor coolant cold leg temperature exceeding its limit, restore the temperature to within its limit within 2 hours or reduce THERMAL POWER to less than 30% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.6 The reactor coolant cold leg temperature shall be determined to be within its limit in accordance with the Surveillance Frequency Control Program.

*Following a reactor power cutback in which (1) Regulating Groups 5 and/or 6 are dropped or (2) Regulating Groups 5 and/or 6 are dropped and the remaining Regulating Groups (Groups 1, 2, 3, and 4) are sequentially inserted, the upper limit on T_c may increase to 559°F for up to 30 minutes.

3/4.2.7 AXIAL SHAPE INDEX

LIMITING CONDITION FOR OPERATION

3.2.7 The AXIAL SHAPE INDEX (ASI) shall be maintained within the limits specified in the COLR.

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER.*

ACTION:

With the AXIAL SHAPE INDEX outside the limits specified in the COLR, restore the AXIAL SHAPE INDEX to within its limit within 2 hours or reduce THERMAL POWER to less than 20% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.7 The AXIAL SHAPE INDEX shall be determined to be within its limit in accordance with the Surveillance Frequency Control Program using the COLSS or any OPERABLE Core Protection Calculator channel.

*See Special Test Exception 3.10.2.

3/4.2.8 PRESSURIZER PRESSURE

LIMITING CONDITION FOR OPERATION

3.2.8 The steady-state pressurizer pressure shall be maintained between 2125 psia and 2275 psia.

APPLICABILITY: MODE 1

ACTION:

With the steady-state pressurizer pressure outside its above limits, restore the pressure to within its limit within 2 hours or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.8 The steady-state pressurizer pressure shall be determined to be within its limit in accordance with the Surveillance Frequency Control Program.

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR PROTECTIVE INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the reactor protective instrumentation channels and bypasses of Table 3.3-1 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each reactor protective instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-1.

4.3.1.2 The logic for the bypasses shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total bypass function shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program during CHANNEL CALIBRATION testing of each channel affected by bypass operation.

4.3.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit in accordance with the Surveillance Frequency Control Program. Neutron detectors are exempt from response time testing. Each test shall include at least one channel per function such that all channels are tested as shown in the "Total No. of Channels" column of Table 3.3-1.

4.3.1.4 The isolation characteristics of each CEA isolation amplifier and each optical isolator for CEA Calculator to Core Protection Calculator data transfer shall be verified in accordance with the Surveillance Frequency Control Program during the shutdown per the following tests:

a. For the CEA position isolation amplifiers:

    1. With I20 volts AC (60 Hz) applied for at least 30 seconds across the output, the reading on the input does not exceed 0.015 volts DC.

SURVEILLANCE REQUIREMENTS (Continued)

2. With 120 volts AC (60 Hz) applied for at least 30 seconds across the input, the reading on the output does not exceed 15.0 volts DC.

b. For the optical isolators: Verify that the input to output insulation resistance is greater than 10 megohms when tested using a megohmmeter on the 500 volt DC range.

4.3.1.5 The Core Protection Calculator System and the Control Element Assembly Calculator System shall be determined OPERABLE in accordance with the Surveillance Frequency Control Program by verifying that less than three auto restarts have occurred on each calculator during the past 12 hours.

4.3.1.6 The Core Protection Calculator System shall be subjected to a CHANNEL FUNCTIONAL TEST to verify OPERABILITY within 12 hours of receipt of a High CPC Cabinet Temperature alarm.

TABLE 4.3-1

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Manual Reactor Trip	N.A.	N.A.	SFCP and S/U(1)	1, 2, 3*, 4*, 5*
2. Linear Power Level - High	SFCP	SFCP(2,4), SFCP(3,4), SFCP(4)	SFCP	1, 2
3. Logarithmic Power Level - High	SFCP	SFCP(4)	SFCP and S/U(1)	2#, 3, 4, 5
4. Pressurizer Pressure - High	SFCP	SFCP	SFCP	1, 2
5. Pressurizer Pressure - Low	SFCP	SFCP	SFCP	1, 2
6. Containment Pressure - High	SFCP	SFCP	SFCP	1, 2
7. Steam Generator Pressure - Low	SFCP	SFCP	SFCP	1, 2
8. Steam Generator Level - Low	SFCP	SFCP	SFCP	1, 2
9. Local Power Density - High	SFCP	SFCP(2,4), SFCP (4,5)	SFCP, SFCP(6)	1, 2
10. DNBR - Low	SFCP	SFCP(7), SFCP(2,4), SFCP(8), SFCP(4,5)	SFCP, SFCP(6)	1, 2
11. DELETED				
12. Reactor Protection System Logic	N.A.	N.A.	SFCP(11) and S/U(1)	1, 2, 3*, 4*, 5*

TABLE 4.3-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
13. Reactor Trip Breakers	N.A.	N.A.	SFCP(10,11), S/U(1)	1, 2, 3*, 4*, 5*
14. Core Protection Calculators	SFCP	SFCP(2,4), SFCP(4,5)	SFCP(9),R(6)	1, 2
15. CEA Calculators	SFCP	SFCP	SFCP, SFCP (6)	1, 2
16. Reactor Coolant Flow - Low	SFCP	SFCP	SFCP	1, 2

TABLE NOTATIONS (Continued)

(3) Above 15% of RATED THERMAL POWER, verify that the linear power subchannel gains of the excore detectors are consistent with the values used to establish the shape annealing matrix elements in the Core Protection Calculators.

(4) Neutron detectors may be excluded from CHANNEL CALIBRATION.

(5) After each fuel loading and prior to exceeding 70% of RATED THERMAL POWER, the incore detectors shall be used to determine or verify acceptable values for the shape annealing matrix elements used in the Core Protection Calculators.

(6) This CHANNEL FUNCTIONAL TEST shall include the injection of simulated process signals into the channel as close to the sensors as practicable to verify OPERABILITY including alarm and/or trip functions.

(7) Above 70% of RATED THERMAL POWER, verify that the total RCS flow rate as indicated by each CPC is less than or equal to the actual RCS total flow rate determined by either using the reactor coolant pump differential pressure instrumentation or by calorimetric calculations and if necessary, adjust the CPC addressable constant flow co-efficients such that each CPC indicated flow is less than or equal to the actual flow rate. The flow measurement uncertainty is included in the BERR1 term in the CPC and is equal to or greater than 4%.

(8) Above 70% of RATED THERMAL POWER, verify that the total RCS flow rate as indicated by each CPC is less than or equal to the actual RCS total flow rate determined by calorimetric calculations.

(9) The CHANNEL FUNCTIONAL TEST shall include verification that the correct values of addressable constants are installed in each OPERABLE CPC.

(10) In accordance with the Surveillance Frequency Control Program and following maintenance or adjustment of the reactor trip breakers, the CHANNEL FUNCTIONAL TEST shall include independent verification of the undervoltage trip function and the shunt trip function.

(11) The CHANNEL FUNCTIONAL TEST shall be scheduled and performed such that the Reactor Trip Breakers (RTBs) are tested in accordance with the Surveillance Frequency Control Program to accommodate the appropriate vendor recommended interval for cycling of each RTB.

3/4.3.2 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2 The Engineered Safety Features Actuation System (ESFAS) instrumentation channels and bypasses shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4.

APPLICABILITY: As shown in Table 3.3-3.

ACTION:

a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value.

b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-2.

4.3.2.2 The logic for the bypasses shall be demonstrated OPERABLE during the at power CHANNEL FUNCTIONAL TEST of channels affected by bypass operation. The total bypass function shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program during CHANNEL CALIBRATION testing of each channel affected by bypass operation.

4.3.2.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit in accordance with the Surveillance Frequency Control Program. Each test shall include at least one channel per function such that all channels are tested as shown in the "Total No. of Channels" Column of Table 3.3-3.

TABLE 4.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. SAFETY INJECTION (SIAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3, 4
b. Containment Pressure - High	SFCP	SFCP	SFCP	1, 2, 3
c. Pressurizer Pressure - Low	SFCP	SFCP	SFCP	1, 2, 3
d. Automatice Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3
Actuation Subgroup Relays	N.A.	N.A.	SFCP(3) (6)	1, 2, 3
2. CONTAINMENT SPRAY (CSAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3, 4
b. Containment Pressure – High - High	SFCP	SFCP	SFCP	1, 2, 3
c. Automatic Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3
Actuation Subgroup Relays	N.A.	N.A.	SFCP(1) (3)	1, 2, 3
3. CONTAINMENT ISOLATION (CIAS)				
a. Manual CIAS (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3, 4
b. Containment Pressure - High	SFCP	SFCP	SFCP	1, 2, 3
c. Pressurizer Pressure - Low	SFCP	SFCP	SFCP	1, 2, 3
d. Automatic Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3
Actuation Subgroup Relays	N.A.	N.A.	SFCP(1) (3)	1, 2, 3
4. MAIN STEAM LINE ISOLATION				
a. Manual (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3
b. Steam Generator Pressure - LOW	SFCP	SFCP	SFCP	1, 2, 3
c. Containment Pressure - High	SFCP	SFCP	SFCP	1, 2, 3
d. Automatic Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3
Actuation Subgroup Relays	N.A.	N.A.	SFCP(1) (3)	1, 2, 3

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
5. SAFETY INJECTION SYSTEM RECIRCULATION (RAS)				
a. Manual RAS (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3, 4
b. Refueling Water Storage Pool - Low	SFCP	SFCP	SFCP	1, 2, 3, 4
c. Automatic Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3, 4
Actuation Subgroup Relays	N.A.	N.A.	SFCP(1) (3)	1, 2, 3, 4
6. LOSS OF POWER (LOV)				
a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	N.A.	SFCP	SFCP(4)	1, 2, 3
b. 480 V Emergency Bus Undervoltage (Loss of Voltage)	N.A.	SFCP	SFCP(4)	1, 2, 3
c. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	N.A.	SFCP	SFCP(4)	1, 2, 3

TABLE 4.3.-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
7. EMERGENCY FEEDWATER (EFAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3
b. SG Level (1/2) - Low and _P (1/2) - High	SFCP	SFCP	SFCP	1, 2, 3
c. SG Level (1/2) - Low and No Pressure - Low Trip (1/2)	SFCP	SFCP	SFCP	1, 2, 3
d. Automatic Actuation Logic (Except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3
Actuation Subgroup Relays	N.A.	N.A	SFCP(1) (3)	1, 2, 3
e. Control Valve Logic (Wide Range SG Level - Low)	SFCP	SFCP	SFCP(5)	1, 2, 3

TABLE NOTATION

(1) Each train or logic channel shall be tested in accordance with the Surveillance Frequency Control Program.

(2) Testing of Automatic Actuation Logic shall include the energization/deenergization of each initiation relay and verification of the OPERABILITY of each initiation relay.

(3) A subgroup relay test shall be performed which shall include the energization/deenergization of each subgroup relay and verification of the OPERABILITY of each subgroup relay. Relays K109, K114, K202, K301, K305, K308 and K313 are exempt from testing during power operation but shall be tested in accordance with the Surveillance Frequency Control Program and during each COLD SHUTDOWN condition unless tested in accordance with the Surveillance Frequency Control Program.

(4) Using installed test switches.

(5) To be performed during each COLD SHUTDOWN if not performed in the previous 6 months.

(6) Each train shall be tested, with the exemption of relays, K110, K410 and K412, in accordance with the Surveillance Frequency Control Program. Relays K110, K410 and K412 shall be tested in accordance with the Surveillance Frequency Control Program.

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. AREA MONITORS				
a. Deleted				
b. Containment - Purge & Exhaust Isolation	SFCP	SFCP	SFCP	1, 2, 3, 4 & **
2. PROCESS MONITORS				
a. DELETED				
b. Control Room Intake Monitors	SFCP	SFCP	SFCP	ALL MODES & ***
c. Steam Generator Blowdown	SFCP	SFCP	SFCP	1, 2, 3, & 4
d. Component Cooling Water Monitors A&B	SFCP	SFCP	SFCP	ALL MODES
e. Component Cooling Water Monitor A/B	SFCP	SFCP	SFCP	1, 2, 3, & 4

*Deleted
**During CORE ALTERATIONS or load movements with or over irradiated fuel within the containment.
***During load movements with or over irradiated fuel.

TABLE 4.3-3 (Continued)

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

	INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
3.	EFFLUENT ACCIDENT MONITORS				
a.	Containment High Range	SFCP	SFCP	SFCP	1, 2, 3, & 4
b.	Plant Stack High Range	SFCP	SFCP	SFCP	1, 2, 3, & 4
c.	Condenser Vacuum Pump High Range	SFCP	SFCP	SFCP	1, 2, 3, & 4
d.	Fuel Handling Building Exhaust High Range	SFCP	SFCP	SFCP	1*, 2*, 3*, & 4*
e.	Main Steam Line High Range	SFCP	SFCP	SFCP	1, 2, 3, & 4

*With irradiated fuel in the storage pool.

TABLE 4.3-6

REMOTE SHUTDOWN INSTRUMENTATION SURVEILLANCE REQURIEMENTS

INSTRUMENTATION		CHANNEL CHECK	CHANNEL CALIBRATION
1.	Neutron Flux	SFCP	SFCP *
2.	Reactor Trip Breaker Indication	SFCP	N.A.
3.	Reactor Coolant Temperature - Cold Leg (T_{Cold})	SFCP	SFCP
4.	Reactor Coolant Temperature - Hot Leg (T_{Hot})	SFCP	SFCP
5.	Pressurizer Pressure	SFCP	SFCP
6.	Pressurizer Level	SFCP	SFCP
7.	Steam Generator Level	SFCP	SFCP
8.	Steam Generator Pressure	SFCP	SFCP
9.	Shutdown Cooling Flow Rate	SFCP	SFCP
10.	Emergency Feedwater Flow Rate	SFCP	SFCP
11.	Condensate Storage Pool Level	SFCP	SFCP

*Neutron detector may be excluded from CHANNEL CALIBRATION.

TABLE 4.3-7

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT		CHANNEL CHECK	CHANNEL CALIBRATION
1.	Containment Pressure (Wide Range)	SFCP	SFCP
2.	Containment Pressure (Wide Wide Range)	SFCP	SFCP
3.	Reactor Coolant Outlet Temperature - T_{Hot} (Wide Range	SFCP	SFCP
4.	Reactor Coolant Inlet Temperature - T_{Cold} (Wide Range)	SFCP	SFCP
5.	Reactor Coolant Pressure - Wide Range	SFCP	SFCP
6.	Pressurizer Water Level	SFCP	SFCP
7.	Steam Generator Water Level - Narrow Range	SFCP	SFCP
8.	Steam Generator Water Level - Wide Range	SFCP	SFCP
9.	Containment Water Level (Wide Range)	SFCP	SFCP
10.	Core Exit Thermocouples	SFCP	SFCP
11.	Containment Isolation Valve Position	SFCP	SFCP
12.	Condensate Storage Pool Level	SFCP	SFCP
13.	Reactor Vessel Level Monitoring System	SFCP	SFCP
14.	Log Power Indication (Neutron Flux)	SFCP	SFCP

INSTRUMENTATION

CHEMICAL DETECTION SYSTEMS

CHLORINE DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.3.7.1 Two independent chlorine detection systems, with their alarm/trip setpoints adjusted to actuate at a chlorine concentration of less than or equal to 2 ppm, shall be OPERABLE.

APPLICABILITY: All MODES.

ACTION:

a. With one chlorine detection system inoperable, restore the inoperable detection system to OPERABLE status within 7 days or within the next 6 hours initiate and maintain operation of the control room ventilation system in the isolate mode of operation.

b. With no chlorine detection system OPERABLE, within 1 hour initiate and maintain operation of the control room ventilation system in the isolate mode of operation.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.7.1 Each chlorine detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK in accordance with the Surveillance Frequency Control Program and a CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.

INSTRUMENTATION

CHEMICAL DETECTION SYSTEMS

BROAD RANGE GAS DETECTION

LIMITING CONDITION FOR OPERATION

3.3.3.7.3 Two independent broad range gas detection systems shall be OPERABLE ** with their alarm/trip setpoints adjusted to actuate at the lowest achievable Immediately Dangerous to Life or Health gas concentration level of detectable toxic gases* providing reliable operation.

APPLICABILITY: All MODES.

ACTION:

a. With one broad range gas detection system inoperable, restore the inoperable detection system to OPERABLE status within 7 days or within the next 6 hours initiate and maintain operation of the control room ventilation system in the isolate mode of operation.

b. With no broad range gas detection system OPERABLE, within 1 hour initiate and maintain operation of the control room ventilation system in the isolate mode of operation.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.7.3 Each broad range gas detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK in accordance with the Surveillance Frequency Control Program, and a CHANNEL FUNCTIONAL TEST in accordance with the Surveillance Frequency Control Program. The CHANNEL FUNCTIONAL TEST will include the introduction of a standard gas.

*Including Ammonia

** The requirements of Technical Specification 3.0.1 do not apply during the time (two minutes or less) when the instrument automatic background/reference spectrum check renders the instrument(s) inoperable.

TABLE 4.3-9

EXPLOSIVE GAS MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE IS REQUIRED
1. WASTE GAS HOLDUP SYSTEM EXPLOSIVE GAS MONITORING SYSTEM					
a. Hydrogen Monitor	SFCP	N.A.	SFCP(4)	SFCP	**
b. Oxygen Monitors	SFCP	N.A.	SFCP(5)	SFCP	**

3/4.4 REACTOR COOLANT SYSTEM

3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

STARTUP AND POWER OPERATION

LIMITING CONDITION FOR OPERATION

3.4.1.1 Both reactor coolant loops and both reactor coolant pumps in each loop shall be in operation.

APPLICABILITY: MODES 1 and 2.

ACTION:

With less than the above required reactor coolant pumps in operation, be in at least HOT STANDBY within 1 hour.

SURVEILLANCE REQUIREMENTS

4.4.1.1 The above required reactor coolant loops shall be verified to be in operation and circulating reactor coolant in accordance with the Surveillance Frequency Control Program.

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 The reactor coolant loops listed below shall be OPERABLE and at least one of these reactor coolant Loops shall be in operation.*

a. Reactor Coolant Loop 1 and its associated steam generator and at least one associated reactor coolant pump.

b. Reactor Coolant Loop 2 and its associated steam generator and at least one associated reactor coolant pump.

APPLICABILITY: MODE 3**.

ACTION:

a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. With no reactor coolant loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2 and immediately initiate corrective action to return the required reactor coolant loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 At least the above required reactor coolant pumps, if not in operation, shall be determined to be OPERABLE in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 At least one reactor coolant loop shall be verified to be in operation and circulating reactor coolant in accordance with the Surveillance Frequency Control Program.

4.4.1.2.3 The required steam generator(s) shall be determined OPERABLE by verifying the secondary side water level to be ≥ 50% of wide range indication in accordance with the Surveillance Frequency Control Program.

*All reactor coolant pumps may be deenergized for up to 1 hour provided (1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

**See Special Test Exception 3.10.5.

REACTOR COOLANT SYSTEM

HOT SHUTDOWN

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required reactor coolant pump(s), if not in operation, shall be determined to be OPERABLE in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignments and indicated power availability.

4.4.1.3.2 The required steam generator(s) shall be determined OPERABLE by verifying the secondary side water level to be ≥ 50% of wide range indication in accordance with the Surveillance Frequency Control Program.

4.4.1.3.3 At least one reactor coolant or shutdown cooling loop shall be verified to be in operation and circulating reactor coolant in accordance with the Surveillance Frequency Control Program.

COLD SHUTDOWN - LOOPS FILLED

SURVEILLANCE REQUIREMENTS

4.4.1.4.1 The required reactor coolant pump(s), if not in operation, shall be determined to be OPERABLE in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignments and indicated power availability.

4.4.1.4.2 The required steam generator(s) shall be determined OPERABLE by verifying the secondary side water level to be ≥50% of wide range indication in accordance with the Surveillance Frequency Control Program.

4.4.1.4.3 At least one reactor coolant loop or shutdown cooling train shall be verified to be in operation and circulating reactor coolant in accordance with the Surveillance Frequency Control Program.

COLD SHUTDOWN - LOOPS NOT FILLED

LIMITING CONDITION FOR OPERATION

3.4.1.5 Two shutdown cooling loops shall be OPERABLE# and at least one shutdown cooling loop shall be in operation.*

APPLICABILITY: MODE 5 with reactor coolant loops not filled.

ACTION:

a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible.

b. With no shutdown cooling loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2 and immediately initiate corrective action to return the required shutdown cooling loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.5 At least one shutdown cooling loop shall be determined to be in operation and circulating reactor coolant in accordance with the Surveillance Frequency Control Program.

One shutdown cooling loop may be inoperable for up to 2 hours for surveillance testing provided the other shutdown cooling loop is OPERABLE and in operation.

* The shutdown cooling pump (LPSI pump) may be deenergized for up to 1 hour provided (1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

3/4.4.3 PRESSURIZER

LIMITING CONDITION FOR OPERATION

3.4.3.1 The pressurizer shall be OPERABLE with:

a. A steady-state water volume greater than or equal to 26% indicated level (350 cubic feet) but less than or equal to 62.5% indicated level (900 cubic feet), and,

b. At least two groups of pressurizer heaters powered from Class 1E buses each having a nominal capacity of 150 kW.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With only one group of the above required pressurizer heaters OPERABLE, restore at least two groups to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With the pressurizer otherwise inoperable, be in at least HOT STANDBY with the reactor trip breakers open within 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.1.1 The pressurizer water volume shall be determined to be within its limit in accordance with the Surveillance Frequency Control Program.

4.4.3.1.2 The capacity of each of the above required groups of pressurizer heaters shall be verified to be at least 150 kW in accordance with the Surveillance Frequency Control Program.

4.4.3.1.3 The emergency power supply for the pressurizer heaters shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by:

a. Verifying the above pressurizer heaters are automatically shed from the emergency power sources upon the injection of an SIAS test signal.

b. Verifying that the above heaters can be manually placed and energized on the emergency power source from the control room.

AUXILIARY SPRAY

LIMITING CONDITION FOR OPERATION

3.4.3.2 Both auxiliary spray valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With only one of the above required auxiliary spray valves OPERABLE, restore both valves to OPERABLE status within 30 days or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With none of the above required auxiliary spray valves OPERABLE, restore at least one valve to OPERABLE status within the next 6 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 The auxiliary spray valve shall be verified to have power available to each valve in accordance with the Surveillance Frequency Control Program.

4.4.3.2.2 The auxiliary spray valves shall be cycled in accordance with the Surveillance Frequency Control Program.

LIMITING CONDITION FOR OPERATION (Continued)

Perform SR 4.4.5.2.1 once per 24 hours and restore the containment sump monitor to OPERABLE status within 30 days;

or

Be in MODE 3 in 6 hours and MODE 5 in the following 30 hours.

c. All required RCS leakage detection instrumentation inoperable.

Initiate ACTION within 1 hour to be in MODE 3 within the next 6 hours and MODE 5 in the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.5.1 The leakage detection systems shall be demonstrated OPERABLE by:

a. Containment atmosphere particulate monitor system - performance of CHANNEL CHECK in accordance with the Surveillance Frequency Control Program, CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program and CHANNEL FUNCTIONAL TEST in accordance with the Surveillance Frequency Control Program.

b. Containment sump level and flow monitors - performance of a CHANNEL CHECK (containment sump level monitor only) in accordance with the Surveillance Frequency Control Program and a CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.

OPERATIONAL LEAKAGE

LIMITING CONDITION FOR OPERATION

3.4.5.2 Reactor Coolant System operational leakage shall be limited to:

a. No PRESSURE BOUNDARY LEAKAGE,

b. 1 gpm UNIDENTIFIED LEAKAGE,

c. 75 gallons per day primary-to-secondary leakage , through any one steam generator (SG),

d. 10 gpm IDENTIFIED LEAKAGE from the Reactor Coolant System, and

e. 1 gpm leakage at a Reactor Coolant System pressure of 2250 ± 20 psia from any Reactor Coolant System pressure isolation valve specified in Table 3.4-1.

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

ACTION:

a. With any PRESSURE BOUNDARY LEAKAGE, or primary to secondary leakage not within limit, be in at least HOT STANDBYwithin 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With any Reactor Coolant System operational leakage greater than any one of the limits, excluding PRESSURE BOUNDARY LEAKAGE, primary to secondary leakage, and leakage from Reactor Coolant System pressure isolation valves, reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With any Reactor Coolant System pressure isolation valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least one closed manual or deactivated automatic valve, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

NOTE: Not required to be performed until 12 hours after establishment of steady state operation.

4.4.5.2.1 Reactor Coolant System leakages, except for primary to secondary leakage, shall be demonstrated to be within each of the above limits by performance of a Reactor Coolant System water inventory balance in accordance with the Surveillance Frequency Control Program.

4.4.5.2.2 Primary to secondary leakage shall be verified to be $\leq$75 gallons per day through any one SG in accordance with the Surveillance Frequency Control Program.

SURVEILLANCE REQUIREMENTS (Continued)

4.4.5.2.3 Each Reactor Coolant System pressure isolation valve specified in Table 3.4-1, Section A and Section B, shall be demonstrated OPERABLE by verifying leakage to be within its limit:

a. In accordance with the Surveillance Frequency Control Program,

b. Prior to entering MODE 2 whenever the plant has been in COLD SHUTDOWN for 7 days or more and if leakage testing has not been performed in the previous 9 months,

c. Prior to returning the valve to service following maintenance, repair, or replacement work on the valve,

d. Following valve actuation for valves in Section B due to automatic or manual action or flow through the valve:

    1. Within 24 hours by verifying valve closure, and

    2. Within 31 days by verifying leakage rate.

The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

4.4.5.2.4 Each Reactor Coolant System pressure isolation valve power-operated valve specified in Table 3.4-1, Section C, shall be demonstrated OPERABLE by verifying leakage to be within its limit:

a. In accordance with the Surveillance Frequency Control Program, and

b. Prior to returning the valve to service following maintenance, repair, or replacement work on the valve.

The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

TABLE 4.4-4

PRIMARY COOLANT SPECIFIC ACTIVITY SAMPLE AND ANALYSIS PROGRAM

TYPE OF MEASUREMENT AND ANALYSIS	SAMPLE AND ANALYSIS FREQUENCY	MODES IN WHICH SAMPLE AND ANALYSIS REQUIRED
1. Gross Activity Determination	SFCP	1, 2, 3, 4
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	SFCP	1
3. Radiochemical for $\bar{E}$ Determination	SFCP*	1
4. Isotopic Analysis for Iodine Including I-131, I-133, and I-135	a) Once per 4 hours, whenever the specific activity exceeds 1.0 μCi/gram, DOSE EQUIVALENT I-131 or 100/$\bar{E}$ μCi/gram, and	1#, 2#, 3#, 4#, 5#
	b) One sample between 2 and 6 hours following a THERMAL POWER change exceeding 15 % of the RATED THERMAL POWER within a 1-hour period.	1, 2, 3

* Sample to be taken after a minimum of 2 EFPD and 20 days of POWER OPERATION have elapsed since reactor was last subcritical for 48 hours or longer.

\# Until the specific activity of the primary coolant system is restored within its limits.

SURVEILLANCE REQUIREMENTS

4.4.8.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits in accordance with the Surveillance Frequency Control Program during system heatup, cooldown, and inservice leak and hydrostatic testing operations.

4.4.8.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, at the intervals required by 10 CFR Part 50 Appendix H in accordance with the Reactor Vessel material surveillance program - withdrawal schedule in FSAR Table 5.3-10. The results of these examinations shall be used to update Figures 3.4-2 and 3.4-3.

SURVEILLANCE REQUIREMENTS

4.4.8.3.1 For each SDC System suction line relief valve:

a. verify in the control room in accordance with the Surveillance Frequency Control Program that each valve in the suction path between the RCS and the SDC relief valve is open.

b. verify each SDC relief valve is OPERABLE in accordance with the Inservice Testing Program.

4.4.8.3.2 With the RCS vented per ACTIONS a, b, or c, the RCS vent(s) and all valves in the vent path shall be verified to be open in accordance with the Surveillance Frequency Control Program*.

*Except when the vent pathway is provided with a valve which is locked, sealed, or otherwise secured in the open position, then verify these valves open in accordance with the Surveillance Frequency Control Program.

REACTOR COOLANT SYSTEM

3/4.4.10 REACTOR COOLANT SYSTEM VENTS

LIMITING CONDITION FOR OPERATION

3.4.10 At least one Reactor Coolant System vent path consisting of at least two valves in series powered from emergency buses shall be OPERABLE and closed at each of the following locations:

a. Reactor vessel head, and

b. Pressurizer steam space.

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

ACTION:

a. With one of the above Reactor Coolant System vent paths inoperable, STARTUP and/or POWER OPERATION may continue provided the inoperable vent path is maintained closed with power removed from the valve actuator of all the vent valves and block valves in the inoperable vent path; restore the inoperable vent path to OPERABLE status within 30 days, or, be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With two or more Reactor Coolant System vent paths inoperable; maintain the inoperable vent paths closed with power removed from the valve actuators of all the vent valves and block valves in the inoperable vent paths, and restore at least one of the vent paths to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.10 Each Reactor Coolant System vent path shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by:

a. Verifying all manual isolation valves in each vent path are locked in the open position.

b. Cycling each vent valve through at least one complete cycle of full travel from the control room during COLD SHUTDOWN or REFUELING.

c. Verifying flow through the Reactor Coolant System vent paths during venting during COLD SHUTDOWN or REFUELING.

ACTION: (Continued)

MODES 1, 2, 3 and 4 with pressurizer pressure greater than or equal to 1750 psia (continued).

d. With two of the required safety injection tanks inoperable, restore one of the tanks to OPERABLE status within 1 hour, or be in HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

MODES 3 and 4 with pressurizer pressure less than 1750 psia

e. With one of the required safety injection tanks inoperable due to boron concentration not within limits, restore the boron concentration to within limits within 72 hours, or be in at least COLD SHUTDOWN within the following 24 hours.

f. With one of the required safety injection tanks inoperable due to inability to verify level or pressure, restore the tank to OPERABLE status within 72 hours, or be in at least COLD SHUTDOWN within the following 24 hours.

g. With one of the required safety injection tanks inoperable for reasons other than ACTION a or b, restore the inoperable tank to OPERABLE status within 1 hour, or be in at least COLD SHUTDOWN within the following 24 hours.

h. With two of the required safety injection tanks inoperable, restore one of the tanks to OPERABLE status within 1 hour, or be in at least COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.5.1 Each safety injection tank shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by:

   1. Verifying the contained borated water volume and nitrogen cover-pressure in the tanks, and

   2. Verifying that each safety injection tank isolation valve is open.

b. In accordance with the Surveillance Frequency Control Program by verifying the boron concentration of the safety injection tank solution.

c. Within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume by verifying the boron concentration of the safety injection tank solution. This surveillance is not required when the volume increase makeup source is the RWSP.

SURVEILLANCE REQUIREMENTS (Continued)

d. In accordance with the Surveillance Frequency Control Program when the RCS pressure is above 1750 psia, by verifying that the isolation valve operator breakers are padlocked in the open position.

e. In accordance with the Surveillance Frequency Control Program by verifying that each safety injection tank isolation valve opens automatically under each of the following conditions:

   1. When an actual or simulated RCS pressure signal exceeds 535 psia, and

   2. Upon receipt of a safety injection test signal.

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the following valves are in the indicated positions with the valves key-locked shut:

Valve Number	Valve Functions	Valve Position
a. 2SI-V1556 (SI-506A)	a. Hot Leg Injection	a. SHUT
b. 2SI-V1557 (SI-502A)	b. Hot Leg Injection	b. SHUT
c. 2SI-V1558 (SI-502B)	c. Hot Leg Injection	c. SHUT
d. 2SI-V1559 (SI-506B)	d. Hot Leg Injection	d. SHUT

b. In accordance with the Surveillance Frequency Control Program by:

1. Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

2. Verifying the ECCS piping is full of water.

c. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the safety injection system sump and cause restriction of the pump suctions during LOCA conditions. This visual inspection shall be performed:

1. For all accessible areas of the containment prior to establishing CONTAINMENT INTEGRITY, and

2. Of the areas affected within containment at the completion of containment entry when CONTAINMENT INTEGRITY is established.

d. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the action of the open permissive interlock (OPI) and isolation valve position alarms of the shutdown cooling system when the reactor coolant system pressure (actual or simulated) is between 392 psia and 422 psia.

SURVEILLANCE REQUIREMENTS (Continued)

2. A visual inspection of the safety injection system sump and verifying that the subsystem suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or corrosion.

3. Verifying that a minimum total of 380 cubic feet of granular trisodium phosphate dodecahydrate (TSP) is contained within the TSP storage baskets.

4. Verifying that when a representative sample of 13.07 ± 0.03 grams of TSP from a TSP storage basket is submerged, without agitation, in 4 ± 0.1 liters of 120 ± 10°F water borated to 3011 ± 30 ppm, the pH of the mixed solution is raised to greater than or equal to 7 within 3 hours.

e. In accordance with the Surveillance Frequency Control Program by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on SIAS and RAS test signals.

2. Verifying that each of the following pumps start automatically upon receipt of a safety injection actuation test signal:

   a. High pressure safety injection pump.

   b. Low pressure safety injection pump.

3. Verifying that on a recirculation actuation test signal, the low pressure safety injection pumps stop, the safety injection system sump isolation valves open.

f. By verifying that each of the following pumps required to be OPERABLE performs as indicated on recirculation flow when tested pursuant to the Inservice Testing Program:

1. High pressure safety injection pump differential pressure greater than or equal to 1429 psid.

2. Low pressure safety injection pump differential pressure greater than or equal to 168 psid.

3/4.5.4 REFUELING WATER STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.5.4 The refueling water storage pool shall be OPERABLE with:

a. A minimum contained borated water volume of 83% indicated level,

b. Between 2050 and 2900 ppm of boron, and

c. A solution temperature of greater than or equal to 55°F and less than or equal to 100°F.

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

ACTION:

With the refueling water storage pool inoperable, restore the pool to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.5.4 The RWSP shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the contained borated water volume in the pool, and

2. Verifying the boron concentration of the water.

b. In accordance with the Surveillance Frequency Control Program by verifying the RWSP temperature when the RAB air temperature is less than 55°F or greater than 100°F.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

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

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. In accordance with the Surveillance Frequency Control Program by verifying that all penetrations* not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

c. After each closing of each penetration subject to Type B testing, except containment air locks, if opened following a Type A or B test, by leak rate testing the seal in accordance with the Containment Leakage Rate Testing Program.

*Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except that such verification need not be performed more often than once per 92 days.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

a. By verifying seal leakage in accordance with the Containment Leakage Rate Testing Program,

b. By conducting overall air lock leakage tests in accordance with the Containment Leakage Rate Testing Program.

c. In accordance with the Surveillance Frequency Control Program by verifying that only one door in each air lock can be opened at a time.

INTERNAL PRESSURE

LIMITING CONDITION FOR OPERATION

3.6.1.4 Primary containment internal pressure shall be maintained less than 27 inches H_2O gauge and greater than 14.275 psia.

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

ACTION:

With the containment internal pressure outside of the limits above, restore the internal pressure to within the limits within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.4 The primary containment internal pressure shall be determined to be within the limits in accordance with the Surveillance Frequency Control Program.

AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.6.1.5 Primary containment average air temperature shall be ≥ 95°F* and ≤ 120 °F.

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

ACTION:

a. If the minimum containment average air temperature is less than 95°F* but greater than or equal to 90°F*, then within 8 hours either restore containment air temperature to greater than or equal to 95°F or reduce the peak linear heat generation rate limit in accordance with the COLR. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. If the minimum containment average air temperature is less than 90°F, then restore containment air temperature to greater than or equal to 95°F within 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. If maximum containment average air temperature is greater than 120°F, then restore containment air temperature to less than or equal to 120°F within 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5 The primary containment average air temperature shall be the arithmetical average of the temperatures at any three of the following locations and shall be determined in accordance with the Surveillance Frequency Control Program:

Location

a. Containment Fan Cooler No. 1A Air Intake

b. Containment Fan Cooler No. 1B Air Intake

c. Containment Fan Cooler No. 1C Air Intake

d. Containment Fan Cooler No. 1D Air Intake

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* The minimum containment average air temperature limit is only applicable at greater than 70% RATED THERMAL POWER.

CONTAINMENT VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.7 Each containment purge supply and exhaust isolation valve (CAP 103, CAP 104, CAP 203, and CAP 204) shall be OPERABLE and may be open at no greater than the 52° open position allowed by the mechanical stop for less than 90 hours per 365 days.

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

ACTION:

a. With a containment purge supply and/or exhaust isolation valve(s) open for greater than or equal to 90 hours per 365 days at any open position, close the open valve(s) or isolate the penetration(s) within 4 hours, otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With a containment purge supply and/or exhaust isolation valve(s) having a measured leakage rate exceeding the limits of Surveillance Requirement 4.6.1.7.2, restore the inoperable valve(s) to OPERABLE status within 24 hours, otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.7.1 The cumulative time that the purge supply or exhaust isolation valves are open during the past 365 days shall be determined in accordance with the Surveillance Frequency Control Program.

4.6.1.7.2 Each containment purge supply and exhaust isolation valve with resilient material seals shall be demonstrated OPERABLE in accordance with the Containment Leakage Rate Testing Program.

4.6.1.7.3 Each containment purge supply and exhaust isolation valve shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by verifying that the mechanical stops limit the valve opening to a position < 52° open.

CONTAINMENT SYSTEMS

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

CONTAINMENT SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.1 Two independent containment spray systems shall be OPERABLE with each spray system capable of taking suction from the RWSP on a containment spray actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal. Each spray system flow path from the safety injection system sump shall be via an OPERABLE shutdown cooling heat exchanger.

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

ACTION:

a. With one containment spray system inoperable, restore the inoperable spray system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours; restore the inoperable spray system to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

b. With two containment spray systems inoperable, restore at least one spray system to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and be in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.1 Each containment spray system shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the water level in the containment spray header riser is > 149.5 feet MSL elevation.

b. In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is correctly positioned to take suction from the RWSP.

c. By verifying, that on recirculation flow, each pump develops a total head of greater than or equal to 219 psid when tested pursuant to the Inservice Testing Program.

*With Reactor Coolant System pressure > 400 psia.

SURVEILLANCE REQUIREMENTS (Continued)

d. In accordance with the Surveillance Frequency Control Program by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on a CSAS test signal.

2. Verifying that upon a recirculation actuation test signal, the safety injection system sump isolation valves open and that a recirculation mode flow path via an OPERABLE shutdown cooling heat exchanger is established.

3. Verifying that each spray pump starts automatically on a CSAS test signal.

e. In accordance with the Surveillance Frequency Control Program by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

CONTAINMENT SYSTEMS

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.2 Two independent trains of containment cooling shall be OPERABLE with one fan cooler to each train.

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

ACTION:

With one train of containment cooling inoperable, restore the inoperable train to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the inoperable containment cooling train to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.2 Each train of containment cooling shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by:

    1. Starting each operational fan not already running from the control room and verifying that each operational fan operates for at least 15 minutes.

    2. Verifying a cooling water flow rate of greater than or equal to 625 gpm to each cooler.

b. In accordance with the Surveillance Frequency Control Program by:

    1. Verifying that each fan starts automatically on an SIAS test signal.

    2. Verifying a cooling water flow rate of greater than or equal to 1200 gpm to each cooler.

    3. Verifying that each cooling water control valve actuates to its full open position on a SIAS test signal.

SURVEILLANCE REQUIREMENTS (Continued)

4.6.3.2 Each containment isolation valve shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by:

a. Verifying that on a containment isolation test signal, each isolation valve actuates to its isolation position.

b. Verifying that on a containment Radiation-High test signal, each containment purge valve actuates to its isolation position.

4.6.3.3 The isolation time of each power-operated or automatic containment isolation valve shall be determined to be within its limit when tested pursuant to the Inservice Testing Program.

3/4.6.6 SECONDARY CONTAINMENT

SHIELD BUILDING VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.6.1 Two independent shield building ventilation systems shall be OPERABLE.

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

ACTION:

With one shield building ventilation system inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.1 Each shield building ventilation system shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 hours continuous with the heaters on.

b. In accordance with the Surveillance Frequency Control Program or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

SURVEILLANCE REQUIREMENTS (Continued)

1. Verifying that the ventilation system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 10,000 cfm ± 10%.

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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

3. Verifying a system flow rate of 10,000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

d. In accordance with the Surveillance Frequency Control Program:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the system at a flow rate of 10,000 cfm ± 10%.

2. Verifying that the system starts on a safety injection actuation test signal.

3. Verifying that the filter cooling bypass valves can be manually cycled.

4. Verifying that each system produces a negative pressure of greater than or equal to 0.25 inch water gauge in the annulus within 1 minute after a start signal.

5. Verifying that the heaters dissipate 60 + 6.0, -6.0 kW when tested in accordance with ANSI N510-1975.

SHIELD BUILDING INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.6.2 SHIELD BUILDING INTEGRITY shall be maintained with an annulus negative pressure greater than 5 inches water gauge. .

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

ACTION:

Without SHIELD BUILDING INTEGRITY, restore SHIELD BUILDING INTEGRITY within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.2 SHIELD BUILDING INTEGRITY shall be demonstrated:

a. In accordance with the Surveillance Frequency Control Program by verifying the annulus pressure to be within its limits.

b. In accordance with the Surveillance Frequency Control Program by verifying that each door in each access opening is closed except when the access opening is being used for normal transit entry and exit, then at least one door shall be closed.

SURVEILLANCE REQUIREMENTS

4.7.1.2 The emergency feedwater system shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that each manual, power-operated, and automatic valve in each water flow path and in both steam supply flow paths to the turbine-driven EFW pump steam turbine, that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per 92 days by testing the EFW pumps pursuant to the Inservice Testing Program. This surveillance requirement is not required to be performed for the turbine-driven EFW pump until 24 hours after exceeding 750 psig in the steam generators.

c. In accordance with the Surveillance Frequency Control Program by:

   1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an actual or simulated actuation signal.

   NOTE: This surveillance requirement is not required to be performed for the turbine-driven EFW pump until 24 hours after exceeding 750 psig in the steam generators.

   2. Verifying that each EFW pump starts automatically upon receipt of an actual or simulated actuation signal.

d. Prior to entering MODE 2, whenever the plant has been in MODE 4, 5, 6 or defueled, for 30 days or longer, or whenever feedwater line cleaning through the emergency feedwater line has been performed, by verifying flow from the condensate storage pool through both parallel flow legs to each steam generator.

CONDENSATE STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.7.1.3 The condensate storage pool (CSP) shall be OPERABLE with:

1.1 A minimum contained volume of at least 92% indicated level.*

1.2 A water temperature of greater than or equal to 55°F and less than or equal to 100°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

In MODES 1, 2, and 3:

With the condensate storage pool inoperable, within 4 hours restore the CSP to OPERABLE status or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

In MODE 4:

With the condensate storage pool inoperable, within 4 hours restore the CSP to OPERABLE status or be in at least COLD SHUTDOWN within the next 24 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.3.1 The condensate storage pool shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying the contained water volume is within its limits.

b. In accordance with the Surveillance Frequency Control Program by verifying CSP temperature when the RAB air temperature is less than 55°F or greater than 100°F.

*In MODE 4, the CSP shall be OPERABLE with a minimum contained volume of at least 11% indicated level.

TABLE 4.7-1

SECONDARY COOLANT SYSTEM SPECIFIC ACTIVITY SAMPLE AND ANALYSIS PROGRAM

TYPE OF MEASUREMENT AND ANALYSIS	SAMPLE AND ANALYSIS FREQUENCY
1. Gross Activity Determination	In accordance with the Surveillance Frequency Control Program
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	a) In accordance with the Surveillance Frequency Control Program, whenever the gross activity determination indicates iodine concentrations greater than 10% of the allowable limit.
	b) In accordance with the Surveillance Frequency Control Program, whenever the gross activity determination indicates iodine concentrations below 10% of the allowable limit.

PLANT SYSTEMS

MAIN STEAM LINE ISOLATION VALVES (MSIVs)

LIMITING CONDITION FOR OPERATION

3.7.1.5 Two MSIVs shall be OPERABLE.

APPLICABILITY: MODE 1, and
MODES 2, 3, and 4, except when all MSIVs are closed and deactivated.

ACTION:

MODE 1

With one MSIV inoperable, restore the valve to OPERABLE status within 8 hours or be in STARTUP within the next 6 hours.

MODES 2, 3 and 4

With one MSIV inoperable, close the valve within 8 hours and verify the valve is closed once per 7 days. Otherwise, be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

Note: Required to be performed for entry into MODES 1 and 2 only.

4.7.1.5 Each MSIV shall be demonstrated OPERABLE:

a. By verifying full closure within 8.0 seconds when tested pursuant to the Inservice Testing Program.

b. By verifying each MSIV actuates to the isolation position on an actual or simulated actuation signal in accordance with the Surveillance Frequency Control Program.

PLANT SYSTEMS

MAIN FEEDWATER ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.6 Each Main Feedwater Isolation Valve (MFIV) shall be OPERABLE.

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

ACTION:

Note: Separate Condition entry is allowed for each valve.

With one or more MFIV inoperable, close and deactivate, or isolate the inoperable valve within 72 hours and verify inoperable valve closed and deactivated or isolated once every 7 days; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The provisions of Specification 3.0.4 do not apply.

SURVEILLANCE REQUIREMENTS

4.7.1.6 Each main feedwater isolation valve shall be demonstrated OPERABLE:

a. By verifying isolation within 6.0 seconds when tested pursuant to the Inservice Testing Program.

b. By verifying actuation to the isolation position on an actual or simulated actuation signal in accordance with the Surveillance Frequency Control Program.

3/4.7.1.7 ATMOSPHERIC DUMP VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.7 Each Atmospheric Dump Valve (ADV) shall be OPERABLE*.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

a. With the automatic actuation channel for one ADV inoperable, restore the inoperable ADV to OPERABLE status within 72 hours or reduce power to less than or equal to 70% RATED THERMAL POWER within the next 6 hours.

b. With the automatic actuation channels for both ADVs inoperable, restore one ADV to OPERABLE status within 1 hour or reduce power to less than or equal to 70% RATED THERMAL POWER within the next 6 hours.

c. With one ADV inoperable, for reasons other than above, restore the ADV to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The provisions of Specification 3.0.4 are not applicable provided one ADV is OPERABLE.

SURVEILLANCE REQUIREMENTS

4.7.1.7 The ADVs shall be demonstrated OPERABLE:

a. By performing a CHANNEL CHECK in accordance with the Surveillance Frequency Control Program when the automatic actuation channels are required to be OPERABLE.

b. By verifiying each ADV automatic actuation channel is in automatic with a setpoint of less than or equal to 1040 psia in accordance with the Surveillance Frequency Control Program when the automatic actuation channels are required to be OPERABLE.

c. By verifying one complete cycle of each ADV when tested pursuant to the Inservice Testing Program.

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* ADV automatic actuation channels (one per ADV, in automatic with a setpoint of less than or equal to 1040 psia) are not required to be OPERABLE when less than or equal to 70% RATED THERMAL POWER for greater than 6 hours.

SURVEILLANCE REQUIREMENTS (continued)

d. By performing a CHANNEL CALIBRATION of each ADV automatic actuation channel in accordance with the Surveillance Frequency Control Program.

e. By verifying actuation of each ADV to the open position on an actual or simulated automatic actuation signal in accordance with the Surveillance Frequency Control Program.

PLANT SYSTEMS

3/4.7.3 COMPONENT COOLING WATER AND AUXILIARY COMPONENT COOLING WATER SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.3 At least two independent component cooling water and associated auxiliary component cooling water trains shall be OPERABLE.

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

ACTION:

With only one component cooling water and associated auxiliary component cooling water train OPERABLE, restore at least two trains to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.3 Each component cooling water and associated auxiliary component cooling water train shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. In accordance with the Surveillance Frequency Control Program, during shutdown, by verifying that each automatic valve servicing safety-related equipment actuates to its correct position on SIAS and CSAS test signals.

c. In accordance with the Surveillance Frequency Control Program by verifying that each component cooling water and associated auxiliary component cooling water pump starts automatically on an SIAS test signal.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

c. With a Tornado Watch in effect, all 9 DCT fans under the missile protected portion of the DCT shall be OPERABLE. If the number of fans OPERABLE is less than required, restore the inoperable fan(s) to OPERABLE status within 1 hour, or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

d. With any UHS fan inoperable, determine the outside ambient temperature at least once every 2 hours and verify that the minimum fan requirements of Table 3.7-3 are satisfied (required only if the associated UHS is OPERABLE).

SURVEILLANCE REQUIREMENTS

4.7.4. Each train of UHS shall be determined OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying the average water temperature and water level to be within specified limits.

b. In accordance with the Surveillance Frequency Control Program, by verifying that each wet tower and dry tower fan that is not already running, starts and operates for at least 15 minutes.

ACTION (Continued):

e. With one or more control room emergency air filtration trains inoperable due to an inoperable control room envelope boundary in MODES 5 or 6, or during load movements with or over irradiated fuel assemblies, immediately suspend load movements with or over irradiated fuel assemblies and operations involving CORE ALTERATIONS.

f. With two control room emergency air filtration trains inoperable in MODES 1, 2, 3, or 4 for reasons other than ACTION b, immediately enter LCO 3.0.3.

g. With two control room emergency air filtration trains inoperable in MODES 5 and 6 or during load movements with or over irradiated fuel assemblies, immediately suspend load movements with or over irradiated fuel assemblies and operations involving CORE ALTERATIONS.

SURVEILLANCE REQUIREMENTS

4.7.6.1 Each control room air filtration train (S-8) shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program 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 on.

b. In accordance with the Surveillance Frequency Control Program or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the filtration train satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 4225 cfm ±10%.

Note 1: The control room envelope (CRE) boundary may be opened intermittently under administrative control.

SURVEILLANCE REQUIREMENTS (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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

3. Verifying a system flow rate of 4225 cfm ±10% during train operation when tested in accordance with ANSI N510-1975.

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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

d. In accordance with the Surveillance Frequency Control Program by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the train at a flow rate of 4225 cfm ±10%.

2. Verifying that on a safety injection actuation test signal or a high radiation test signal, the train automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks and the normal outside airflow paths isolate.

3. Verifying that heaters dissipate 10 +1.0, -1.0 kW when tested in accordance with ANSI N510-1975.

4. Verifying that on a toxic gas detection signal, the system automatically switches to the isolation mode of operation.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm ±10%.

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm ±10%.

g. Perform required control room envelope unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.

CONTROL ROOM AIR TEMPERATURE - OPERATING

LIMITING CONDITION FOR OPERATION

3.7.6.3 Two independent control room air conditioning units shall be OPERABLE.

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

ACTION:

a. With one control room air conditioning unit inoperable, restore the inoperable unit to OPERABLE status within 7 days or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With two control room air conditioning units inoperable, return one unit to an OPERABLE status within 1 hour or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.6.3 Each control room air conditioning unit shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the operating control room air conditioning unit is maintaining average control room air temperature less than or equal to 80°F.

b. In accordance with the Surveillance Frequency Control Program, if not performed within the last quarter, by verifying that each control room air conditioning unit starts and operates for at least 15 minutes.

*During load movements with or over irradiated fuel assemblies, TS 3.7.6.4 is also applicable.

PLANT SYSTEMS

3/4.7.7 CONTROLLED VENTILATION AREA SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent controlled ventilation area systems shall be OPERABLE.

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

ACTION:

With one controlled ventilation area system inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.7 Each controlled ventilation area system shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 hours continuous with the heaters on.

b. In accordance with the Surveillance Frequency Control Program or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

   1. Verifying that the controlled ventilation area system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 3000 cfm ± 10%.

   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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

   3. Verifying a system flow rate of 3000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

SURVEILLANCE REQUIREMENTS (Continued)

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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

d. In accordance with the Surveillance Frequency Control Program by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the system at a flow rate of 3000 cfm ± 10%.

2. Verifying that the system starts on a Safety Injection Actuation Test Signal and achieves and maintains a negative pressure of ≥ 0.25 inch water gauge within 45 seconds.

3. Verifying that the filter cooling bypass valves can be manually cycled.

4. Verifying that the heaters dissipate 20 + 2.0, -2.0 kW when tested in accordance with ANSI N510-1975.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 3000 cfm ± 10%.

f. After each complete or partial replacement of a charcoal absorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 3000 cfm ± 10%.

3/4.7.12 ESSENTIAL SERVICES CHILLED WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.12 Two independent essential services chilled water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

With only one essential services chilled water loop OPERABLE, restore two loops to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.12.1 Each of the above required essential services chilled water loop shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. In accordance with the Surveillance Frequency Control Program by verifying that the water outlet temperature is $\leq$ 42°F at a flow rate of $\geq$ 500 gpm.

c. Deleted

d. In accordance with the Surveillance Frequency Control Program, by verifying that each essential services chilled water pump and compressor starts automatically on a safety injection actuation test signal.

4.7.12.2 The backup essential services chilled water pump and chiller shall be demonstrated OPERABLE in accordance with Specification 4.7.12.1 whenever it is functioning as part of one of the required essential services chilled water loops.

SURVEILLANCE REQUIREMENTS

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

a. Determined OPERABLE in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignments, indicated power availablity, and

b. Demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by transferring manually and automatically unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE*:

a. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the fuel level in the diesel oil feed tank,

2. Deleted,

3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the diesel oil feed tank,

4. Verifying the diesel starts**. The generator voltage and frequency shall be at least 3920 volts and 58.8 Hz in $\leq$ 10 seconds after the start signal. The steady state voltage and frequency shall be maintained at 4160 + 420, -240 volts and 60 $\pm$ 1.2 Hz. The diesel generator shall be started for this test by using one of the following signals:

   a) Manual.

   b) Simulated loss-of-offsite power by itself.

   c) Simulated loss-of-offsite power in conjunction with an ESF actuation test signal.

   d) An ESF actuation test signal by itself.

*All planned starts for the purpose of surveillance in this section may be preceded by a prelube period as recommended by the manufacturer.

**A modified diesel generator start involving idling and gradual acceleration to synchronous speed may be used for this surveillance requirement as recommended by the manufacturer. When modified start procedures are not used, the time, speed, voltage, and frequency tolerances of this surveillance requirement must be met.

5. Verifying the generator is synchronized, loaded to an indicated 4000-4400 Kw* in accordance with the manufacturer's recommendation and operates for at least an additional 60 minutes#, and

6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

b. In accordance with the Surveillance Frequency Control Program and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the diesel oil feed tanks.

c. Deleted

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

#This surveillance requirement shall be preceded by and immediately follow without shutdown a successful performance of 4.8.1.1.2a.4 or 4.8.1.1.2d.

d. In accordance with the Surveillance Frequency Control Program a diesel generator fast start test shall be performed in accordance with TS 4.8.1.1.2a.4. Performance of the fast start test satisfies the 31 day testing requirements specified in TS 4.8.1.1.2a.4.

e. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the generator capability to reject a load of greater than or equal to 498 kW while maintaining voltage at 4160 +420, -240 volts and frequency at 60 +4.5, -1.2 Hz.

2. Verifying the generator capability to reject a load of an indicated 4000-4400 kW without tripping. The generator voltage shall not exceed 5023 volts during and following the load rejection.

3. During shutdown, simulating a loss-of-offsite power by itself, and:

   a) Verifying deenergization of the emergency busses and load shedding from the emergency busses.

   b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses and the permanently connected loads within 10 seconds after the auto-start signal, energizes the auto-connected shutdown loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 +420, -240 volts and 60 +1.2, -0.3 Hz during this test.

4. Verifying that on an SIAS actuation test signal (without loss-of-offsite power) the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The steady-state generator voltage and frequency shall be 4160 +420, -240 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the generator voltage and frequency shall be maintained within these limits during this test.

SURVEILLANCE REQUIREMENTS (Continued)

8. 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) Be restored to its standby status.

9. During shutdown, verifying that with the diesel generator operating in a test mode (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 energizes the emergency loads with offsite power.

10. Verifying that each fuel transfer pump transfers fuel to its associated diesel oil feed tank by taking suction from the opposite train fuel oil storage tank via the installed cross connect.

11. During shutdown, verifying that the automatic load sequence timer is OPERABLE with the time of each load block within ±10% of the sequenced load block time.

12. Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:

   a) turning gear engaged
   b) emergency stop
   c) loss of D.C. control power
   d) governor fuel oil linkage tripped

f. Deleted

g. In accordance with the Surveillance Frequency Control Program or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously, during shutdown, and verifying that the diesel generators accelerate to at least 600 rpm (60 ± 1.2 Hz) in less than or equal to 10 seconds.

h. Deleted

DIESEL FUEL OIL

LIMITING CONDITION FOR OPERATION

3.8.1.3 The stored diesel fuel oil shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTION: (Note: Separate ACTION entry is allowed for each DG.)

a. With the fuel oil storage tank volume less than 39,300 gallons and greater than 37,000 gallons, restore fuel oil storage tank volume to greater than or equal to 39,300 gallons within 5 days (provided replacement fuel oil is onsite within the first 48 hours).

b. With one or more DGs with stored fuel oil total particulates not within limits, restore fuel oil total particulates to within limits within 7 days.

c. With one or more DGs with new fuel oil properties not within limits, restore stored fuel oil properties to within limits within 30 days.

d. If any of the above ACTIONS cannot be met, or
if the diesel fuel oil is not within limits for reasons other than the above ACTIONS, immediately declare the associated DG(s) inoperable.

SURVEILLANCE REQUIREMENTS

4.8.1.3.1 In accordance with the Surveillance Frequency Control Program verify each fuel oil storage tank volume.

4.8.1.3.2 Verify fuel oil properties of new or stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.

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 Battery Bank No. 3A-S and one associated full capacity charger (3A1-S or 3A2-S).

b. 125-volt Battery Bank No. 3B-S and one associated full capacity charger (3B1-S or 3B2-S).

c. 125-volt battery Bank No. 3AB-S and one associated full capacity charger (3AB1-S or 3AB2-S).

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

ACTION:

a. With one of the required battery banks inoperable, restore the inoperable battery bank 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.

b. With one of the required full capacity chargers inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1a.1 within 1 hour, and at least once per 8 hours thereafter. If any Category A limit in Table 4.8-2 is not met, declare the battery inoperable.

SURVEILLANCE REQUIREMENTS

4.8.2.1 Each 125-volt battery bank and at least one associated charger shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program 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 125 volts on float charge.

SURVEILLANCE REQUIREMENTS (Continued)

b. In accordance with the Surveillance Frequency Control Program 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} ohms, and

   3. The average electrolyte temperature of a random sample of at least ten of the connected cells is above 70°F.

c. In accordance with the Surveillance Frequency Control Program 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} ohms, and

   4. The battery charger will supply at least 150 amperes for 3A1-S, 3A2-S, 3B1-S and 3B2-S and 200 amperes for 3AB1-S and 3AB2-S at greater than or equal to 132 volts for at least 8 hours.

d. In accordance with the Surveillance Frequency Control Program, 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.

e. In accordance with the Surveillance Frequency Control Program, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test may be performed in lieu of the battery service test required by Surveillance Requirement 4.8.2.1d.

f. Annual performance discharge tests of battery capacity shall be given 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.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION:

a. With one of the required divisions of A.C. ESF busses 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 A.C. SUPS bus either not energized from its associated inverter, or with the inverter not connected to its associated D.C. bus: (1) reenergize the A.C. SUPS 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 and (2) reenergize the A.C. SUPS bus from 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.

c. With one D.C. bus not connected to its associated battery bank, reconnect the D.C. bus from its associated OPERABLE battery bank 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 busses shall be determined energized in the required manner in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignment and indicated voltage on the busses.

ONSITE POWER DISTRIBUTION

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.3.2 As a minimum, the following electrical busses shall be energized in the specified manner:

a. One division of A.C. ESF busses consisting of one 4160 volt and one 480-volt A.C. ESF bus (3A3-S and 3A31-S or 3B3-S and 3B31-S).

b. Two 120-volt A.C. SUPS busses energized from their associated inverters connected to their respective D.C. busses (3MA-S, 3MB-S, 3MC-S, or 3MD-S).

c. One 120-volt A.C. SUPS Bus (3A-S or 3B-S) energized from its associated inverter connected to its respective D.C. bus.

d. One 125-volt D.C. bus (3A-DC-S or 3B-DC-S) connected to its associated battery bank.

APPLICABILITY: MODES 5 and 6.

ACTION:

With any of the above required electrical busses not energized in the required manner, immediately suspend all operations involving CORE ALTERATIONS, operations involving positive reactivity additions that could result in loss of required SHUTDOWN MARGIN or boron concentration, or load movements with or over irradiated fuel, initiate corrective action to energize the required electrical busses in the specified manner as soon as possible.

SURVEILLANCE REQUIREMENTS

4.8.3.2 The specified busses shall be determined energized in the required manner in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignment and indicated voltage on the busses.

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 Primary and backup containment penetration conductor overcurrent protective devices associated with each containment electrical penetration circuit shall be OPERABLE. The scope of these protective devices excludes those circuits for which credible fault currents would not exceed the electrical penetration design rating.

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

ACTION:

a. With one or more of the above required containment penetration conductor overcurrent devices inoperable:

   1. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping, racking out, or removing the alternate device or racking out or removing the inoperable device within 72 hours, and

   2. Declare the affected system or component inoperable, and

   3. Verify at least once per 7 days thereafter the alternate device is tripped, racked out, or removed, or the device is racked out or removed.

   Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. The provisions of Specification 3.0.4 are not applicable to overcurrent devices which have the inoperable device racked out or removed or, which have the alternate device tripped, racked out, or removed.

SURVEILLANCE REQUIREMENTS

4.8.4.1 The above noted primary and backup containment penetration conductor overcurrent protective devices shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program:

   1. By verifying that the medium voltage (4-15 kV) circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers of each voltage level, and performing the following:

      (a) A CHANNEL CALIBRATION of the associated protective relays, and

      (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.

SURVEILLANCE REQUIREMENTS (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, except for those breakers with external trip devices,* shall consist of injecting a current in excess of the breakers' nominal setpoint and measuring the response time. The measured response time will be compared to the manufacturer's data to ensure that it is less than or equal to a value specified by the manufacturer. 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.

b. In accordance with the Surveillance Frequency Control Program by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

*Testing of these circuit breakers (i.e., the 480 volts power from low voltage switchgear) shall be performed in accordance with the manufacturer's recommendations.

ELECTRICAL POWER SYSTEMS

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION AND BYPASS DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.2 The thermal overload protection and bypass devices, integral with the motor starter, of each valve used in safety systems shall be OPERABLE.

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

ACTION:

With one or more of the thermal overload protection and/or bypass devices inoperable, declare the affected valve(s) inoperable and apply the appropriate ACTION Statement(s) for the affected valve(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2 The above required thermal overload protection and bypass devices shall be demonstrated OPERABLE.

a. In accordance with the Surveillance Frequency Control Program, by the performance of a CHANNEL FUNCTIONAL TEST of the bypass circuitry for those thermal overload devices which are either:

   1. Continuously bypassed and temporarily placed in force only when the valve motors are undergoing periodic or maintenance testing, or

   2. Normally in force during plant operation and bypassed under accident conditions.

b. In accordance with the Surveillance Frequency Control Program by the performance of a CHANNEL CALIBRATION of a representative sample of at least 25% of:

   1. All thermal overload devices which are not bypassed, such that each nonbypassed device is calibrated in accordance with the Surveillance Frequency Control Program.

   2. All thermal overload devices which are continuously bypassed and temporarily placed in force only when the valve motors are undergoing periodic or maintenance testing, and thermal overload devices normally in force and bypassed under accident conditions such that each thermal overload is calibrated and each valve is cycled through at least one complete cycle of full travel with the motor-operator when the thermal overload is OPERABLE and not bypassed, in accordance with the Surveillance Frequency Control Program.

3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1 With the reactor vessel head closure bolts less than fully tensioned or with the head removed, the boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the reactivity conditions specified in the COLR is met.

APPLICABILITY: MODE 6*.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate action to restore boron concentration to within COLR limits.

SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

a. Removing or unbolting the reactor vessel head, and

b. Withdrawal of any CEA in excess of 3 feet from its fully inserted position within the reactor pressure vessel.

4.9.1.2 The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis in accordance with the Surveillance Frequency Control Program.

*The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the reactor vessel head closure bolts less than fully tensioned or with the head removed.

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 As a minimum, two source range neutron flux monitors shall be OPERABLE and operating, 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 operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of Technical Specification 3.9.1.

b. With both of the above required monitors inoperable or not operating, determine the boron concentration of the Reactor Coolant System at least once per 12 hours.

SURVEILLANCE REQUIREMENTS

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

a. A CHANNEL CHECK in accordance with the Surveillance Frequency Control Program,

b. A CHANNEL FUNCTIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS, and

c. A CHANNEL FUNCTIONAL TEST in accordance with the Surveillance Frequency Control Program.

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 closed,

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. Closed by a manual or automatic isolation valve, blind flange, or equivalent, or

   2. Capable of being closed by an OPERABLE containment purge and exhaust isolation system.

Note: Penetration flow path(s) described in a, b, and c above, that provides direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls.

APPLICABILITY: During CORE ALTERATIONS or load movements with or over irradiated fuel within the containment.

ACTION:

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

SURVEILLANCE REQUIREMENTS

4.9.4.1 Verify each required containment penetration is in the required status prior to the start of and in accordance with the Surveillance Frequency Control Program during CORE ALTERATIONS or load movements with or over irradiated fuel within containment.

4.9.4.2 Verify each required containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal in accordance with the Surveillance Frequency Control Program or load movements with or over irradiated fuel within containment.

NOTE - SR 4.9.4.2 is not required to be met for containment purge and exhaust valve(s) in penetrations closed to comply with LCO 3.9.4.c.1.

3/4.9.8 SHUTDOWN COOLING AND COOLANT CIRCULATION

HIGH WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one shutdown cooling train shall be OPERABLE and in operation.*

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

ACTION:

With no shutdown cooling train OPERABLE and in operation, suspend all operations involving an increase in the reactor decay heat load or operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of Technical Specification 3.9.1 and immediately initiate corrective action to return the required shutdown cooling train to OPERABLE and operating status. 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 shutdown cooling train shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 4000 gpm** in accordance with the Surveillance Frequency Control Program.

*The shutdown cooling loop may be removed from operation for up to 1 hour per 8-hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs, provided no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the minimum required boron concentration of Technical Specification 3.9.1.

**The minimum flow may be reduced to 3000 gpm after the reactor has been shut down for greater than or equal to 175 hours or by verifying at least once per hour that the RCS temperature is less then 135°F. The minimum flow may be reduced to 2000 gpm after the reactor has been shut down for greater than or equal to 375 hours.

LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.2 Two# independent shutdown cooling trains shall be OPERABLE and at least one shutdown cooling train shall be in operation.*

APPLICABILITY: MODE 6 when the water level above the top of the fuel seated in the reactor pressure vessel is less than 23 feet.

ACTION:

a. With one of the required shutdown cooling trains inoperable, immediately initiate corrective action to return the required train to OPERABLE status, or to establish greater than or equal to 23 feet of water above the top of the fuel seated in the reactor pressure vessel.

b. With no shutdown cooling train OPERABLE and in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of Technical Specification 3.9.1 and immediately initiate corrective action to return the required shutdown cooling train to OPERABLE and operating status. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

SURVEILLANCE REQUIREMENTS

4.9.8.2 At least one shutdown cooling train shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 4000 gpm** in accordance with the Surveillance Frequency Control Program.

#Only one shutdown cooling train is required to be OPERABLE and in operation provided there are no irradiated fuel assemblies seated within the reactor pressure vessel.

*The shutdown cooling loop may be removed from operations for up to 1 hour per 8-hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs, provided no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the minimum required boron concentration of Technical Specification 3.9.1.

**The minimum flow may be reduced to 3000 gpm after the reactor has been shut down for greater than or equal to 175 hours or by verifying at least once per hour that the RCS temperature is less than 135°F. The minimum flow may be reduced to 2000 gpm after the reactor has been shut down for greater than or equal to 375 hours.

3/4.9.10 WATER LEVEL - REACTOR VESSEL

FUEL ASSEMBLIES

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: During movement of fuel assemblies within the reactor pressure vessel when either the fuel assemblies being moved or the fuel assemblies seated within the reactor pressure vessel are irradiated.

ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel assemblies within the pressure vessel.

SURVEILLANCE REQUIREMENTS

4.9.10.1 The water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and in accordance with the Surveillance Frequency Control Program thereafter during movement of fuel assemblies.

CEAs

LIMITING CONDITION FOR OPERATION

3.9.10.2 At least 23 feet of water shall be maintained over the top of the fuel seated in the reactor pressure vessel.

APPLICABILITY: During movement of CEAs within the reactor pressure vessel, when the fuel assemblies seated within the reactor pressure vessel are irradiated.

ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving movement of CEAs within the pressure vessel.

SURVEILLANCE REQUIREMENTS

4.9.10.2 The water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and in accordance with the Surveillance Frequency Control Program thereafter during movement of CEAs.

3/4.9.11 WATER LEVEL - SPENT FUEL POOL

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: Whenever irradiated fuel assemblies are in the spent fuel pool.

ACTION:

With the requirement of the specification not satisfied, suspend all movement of fuel assemblies and crane operations with loads in the fuel storage areas and restore the water level to within its limit within 4 hours.

SURVEILLANCE REQUIREMENTS

4.9.11 The water level in the spent fuel pool shall be determined to be at least its minimum required depth in accordance with the Surveillance Frequency Control Program when irradiated fuel assemblies are in the spent fuel pool.

REFUELING OPERATIONS

3/4.9.12 SPENT FUEL POOL (SFP) BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.12 The spent fuel pool boron concentration shall be $\geq$ 1900 ppm.

APPLICABILITY: When fuel assemblies are stored in the SFP.

ACTION:

a. With the spent fuel pool boron concentration not within limits immediately suspend movement of fuel in the SFP and immediately initiate actions to restore boron concentration to within limits.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.12 Verify the spent fuel pool concentration is within limits in accordance with the Surveillance Frequency Control Program.

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 or 3.1.1.2 may be suspended for measurement of CEA worth and SHUTDOWN MARGIN provided reactivity equivalent to at least the highest estimated CEA worth is available for trip insertion from OPERABLE CEA(s).

APPLICABILITY: MODES 2 AND 3*.

ACTION:

a. With any CEA not fully inserted and with less than the above reactivity equivalent available for trip insertion, immediately initiate boration to restore the SHUTDOWN MARGIN required by Specification 3.1.1.1.

b. With all CEAs fully inserted and the reactor subcritical by less than the above reactivity equivalent, immediately initiate boration to restore the SHUTDOWN MARGIN required by Specification 3.1.1.2.

SURVEILLANCE REQUIREMENTS

4.10.1.1 The position of each CEA required either partially or fully withdrawn shall be determined in accordance with the Surveillance Frequency Control Program.

4.10.1.2 Each CEA not fully inserted shall be demonstrated capable of full insertion when tripped from at least the 50% withdrawn position within 7 days prior to reducing the SHUTDOWN MARGIN to less than the limits of Specification 3.1.1.1.

*Operation in MODE 3 shall be limited to 6 consecutive hours.

3/4.10.2 MODERATOR TEMPERATURE COEFFICIENT, GROUP HEIGHT, INSERTION, AND POWER DISTRIBUTION LIMITS

LIMITING CONDITION FOR OPERATION

3.10.2 The moderator temperature coefficient, group height, insertion, and power distribution limits of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.2, 3.2.3, 3.2.7, and the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 may be suspended during the performance of PHYSICS TESTS provided:

a. The THERMAL POWER is restricted to the test power plateau which shall not exceed 85% of RATED THERMAL POWER, and

b. The limits of Specification 3.2.1 are maintained and determined as specified in Specification 4.10.2.2 below.

APPLICABILITY: MODES 1 and 2.

ACTION:

With any of the limits of Specification 3.2.1 being exceeded while the requirements of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.2, 3.2.3, 3.2.7, and the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 are suspended, either:

a. Reduce THERMAL POWER sufficiently to satisfy the requirements of Specification 3.2.1, or

b. Be in HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.10.2.1 The THERMAL POWER shall be determined in accordance with the Surveillance Frequency Control Program during PHYSICS TESTS in which the requirements of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.2, 3.2.3, 3.2.7, or the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 are suspended and shall be verified to be within the test power plateau.

4.10.2.2 The linear heat rate shall be determined to be within the limits of Specification 3.2.1 by monitoring it continuously with the Incore Detection Monitoring System pursuant to the requirements of Specifications 4.2.1.2 during PHYSICS TESTS above 5% of RATED THERMAL POWER in which the requirements of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.2, 3.2.3, 3.2.7, or the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 are suspended.

SPECIAL TEST EXCEPTIONS

3/4.10.3 REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

3.10.3 The noted requirements of Tables 2.2-1 and 3.3-1 may be suspended during the performance of startup and PHYSICS TESTS, provided:

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

b. The reactor trip setpoints of the OPERABLE power level channels are set at less than or equal to 20% of RATED THERMAL POWER, or

c. The core protection calculator operating bypass permissive setpoints are increased to greater than the logarithmic power-hi trip setpoint specified in Table 2.2-1 and less than 5% RATED THERMAL POWER.

APPLICABILITY: During startup and PHYSICS TESTS.

ACTION:

With the THERMAL POWER greater than 5% of RATED THERMAL POWER, immediately trip the reactor.

SURVEILLANCE REQUIREMENTS

4.10.3.1 The THERMAL POWER shall be determined to be less than or equal to 5% of RATED THERMAL POWER in accordance with the Surveillance Frequency Control Program during startup and PHYSICS TESTS.

4.10.3.2 Each wide range logarithmic and power level neutron flux monitoring channel shall be subjected to a CHANNEL FUNCTIONAL TEST within 12 hours prior to initiating startup and PHYSICS TESTS.

3/4.10.5 NATURAL CIRCULATION TESTING

LIMITING CONDITION FOR OPERATION

3.10.5 The limitation of Specification 3.4.1.2 may be suspended during the performance of natural circulation testing, provided the Reactor Coolant System saturation margin is maintained greater than or equal to 20°F.

APPLICABILITY: MODE 3 during natural circulation testing.

ACTION:

With the Reactor Coolant System saturation margin less than 20°F, immediately place at least one reactor coolant loop in operation, with at least one reactor coolant pump.

SURVEILLANCE REQUIREMENTS

4.10.5.1 The saturation margin shall be determined to be within the above limits by continuous monitoring with the saturation margin monitors required by Table 3.3-10 or, by calculating the saturation margin in accordance with the Surveillance Frequency Control Program.

4.10.5.2 The saturation margin monitor shall be demonstrated OPERABLE by performance of a CHANNEL CHECK within 24 hours prior to initiating natural circulation testing.

LIMITING CONDITION OR OPERATION

3.11.2.6 The quantity of radioactivity contained in each gas storage tank shall be limited to less than or equal to 8.5×10^4 curies noble gases (considered as Xe-133 equivalent).

APPLICABILITY: At all times.

ACTION:

a. With the quantity of radioactive material in any gas storage tanks exceeding the above limit, immediately suspend all additions of radioactive material to the tank. Within 48 hours reduce the tank contents to within the limits and describe the events leading to this condition in the next Radioactive Effluent Release Report, pursuant to Specification 6.9.1.8.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.6 The quantity of radioactive material contained in each gas storage tank on-service shall be determined to be within the above limit in accordance with the Surveillance Frequency Control Program until the quantity exceeds 4.25×10^4 curies noble gases (50% of allowed limit) and then at least once per 24 hours when radioactive materials are being added to the tank. Tanks isolated for decay will be sampled to verify above limit is met within 24 hours following removal from service.

6.5.17 Control Room Envelope Habitability Program (Continued)

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

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

e. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

f. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the control room emergency air filtration, operating at the flow rate required by SR 4.7.6.1.b in accordance with the Surveillance Frequency Control Program. The results shall be trended and used as part of the assessment of the CRE boundary.

g. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

h. The provisions of SR 4.0.2 are applicable to the FREQUENCIES for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

6.5.18 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.

Attachment 5 to W3F1-2015-0006

Proposed Technical Specification Bases Changes

(60 Pages Attached)

3/4.1.1 BORATION CONTROL

3/4.1.1.1 and 3/4.1.1.2 SHUTDOWN MARGIN

SHUTDOWN MARGIN is the amount by which the core is subcritical, or would be subcritical immediately following a reactor trip, considering a single malfunction resulting in the highest worth CEA failing to insert.

The function of SHUTDOWN MARGIN is to ensure that the reactor remains subcritical following a design basis accident or anticipated operational occurrence. During operation in MODES 1 and 2, with k_{eff} greater than or equal to 1.0, the transient insertion limits of Specification 3.1.3.6 ensure that sufficient SHUTDOWN MARGIN is available.

SHUTDOWN MARGIN requirements vary throughout the core life as a function of fuel depletion and reactor coolant system (RCS) cold leg temperature (T_{cold}). The most restrictive condition occurs at EOL, with (T_{cold}) at no-load operating temperature, and is associated with a postulated steam line break accident and the resulting uncontrolled RCS cooldown. In the analysis of this accident, the specified SHUTDOWN MARGIN is required to control the reactivity transient and ensure that the fuel performance and offsite dose criteria are satisfied. As (initial) T_{cold} decreases, the potential RCS cooldown and the resulting reactivity transient are less severe and, therefore, the required SHUTDOWN MARGIN also decreases. Below T_{cold} of about 200°F, the inadvertent deboration event becomes limiting with respect to the SHUTDOWN MARGIN requirements. Below 200°F, the specified SHUTDOWN MARGIN ensures that sufficient time for operator actions exists between the initial indication of the deboration and the total loss of SHUTDOWN MARGIN. Accordingly, the SHUTDOWN MARGIN requirements are based upon these limiting conditions.

Additional events considered in establishing requirements on SHUTDOWN MARGIN are single CEA withdrawal and startup of an inactive reactor coolant pump.

If the SHUTDOWN MARGIN requirements are not met, boration must be initiated immediately. Boration will continue until the SHUTDOWN MARGIN requirements are met.

In the determination of the required combination of boration flow rate and boron concentration, there is no unique requirement that must be satisfied provided the boration source is sufficient to achieve the SHUTDOWN MARGIN. Since it is imperative to raise the boron concentration of the RCS as soon as possible, the boron concentration should be a highly concentrated solution, such as that normally found in the boric acid makeup tanks or the refueling water storage pool. The Operator should borate with the best source available for the plant conditions. INSERT 2b

Other technical specifications that reference the Specifications on SHUTDOWN MARGIN are: 3/4.1.2, BORATION SYSTEMS, 3/4.1.3, MOVABLE CONTROL ASSEMBLIES, 3/4.9.1, REFUELING OPERATIONS - BORON CONCENTRATION, and 3/4.10.1, SHUTDOWN MARGIN.

3/4.1 REACTIVITY CONTROL SYSTEMS

BASES

3/4.1.1.3 MODERATOR TEMPERATURE COEFFICIENT

The limitations on moderator temperature coefficient (MTC) are provided to ensure that the assumptions used in the accident and transient analysis remain valid through each fuel cycle. The Surveillance Requirements consisting of beginning of cycle measurements, plant parameter monitoring, and end of cycle MTC predictions ensures that the MTC remains within acceptable values. The confirmation that the measured values are within a tolerance of $\pm 0.16 \times 10^{-4}$ delta k/k/°F from the corresponding design values prior to 5% power and 40 EFPD provides assurances that the MTC will be maintained within acceptable values throughout each fuel cycle. CE NPSD 911 and CE NPSD 911 Amendment 1, "Analysis of Moderator Temperature Coefficients in Support of a Change in the Technical Specifications End of Cycle Negative MTC Limit", provide the analysis that established the design margin of $\pm 0.16 \times 10^{-4}$ delta k/k/°F.

→(DRN 06-814, Ch. 47)

For fuel cycles that meet the applicability requirements of WCAP-16011-P-A, Revision 0, "Startup Test Activity Reduction Program," SR 4.1.1.3.2.a may be met prior to exceeding 5% of RATED THERMAL POWER after each fuel loading by confirmation that the predicted MTC, when adjusted for the measured RCS boron concentration, is within the MTC limits. WCAP-16011-P-A also provides the basis for using only the near 40 EFPD surveillance test result to justify elimination of the near two-thirds of expected core burnup surveillance when applicability requirements are met. Performance of only one measurement at power is justified based on the WCAP-16011-P-A conclusion that ITC startup test data between different operating conditions is poolable.

The applicability requirements in WCAP-16011-P-A ensure core designs are not significantly different than those used to benchmark predictions and require that the measured RCS boron concentration meets specific test criteria. This provides assurance that the MTC obtained from the adjusted predicted MTC is accurate.

For fuel cycles that do not meet the applicability requirements in WCAP-16011-P-A, the verification of MTC required prior to entering MODE 1 after each fuel loading is performed by measurement of the isothermal temperature coefficient.

←(DRN 06-814, Ch. 47)

3/4.1.1.4 MINIMUM TEMPERATURE FOR CRITICALITY

→(DRN 05-896, Ch. 41; 06-790, Ch. 46)

This specification ensures that the reactor will not be made critical with the indicated Reactor Coolant System cold leg temperature less than 533°F. This limitation is required to ensure (1) the moderator temperature coefficient is within its analyzed temperature range, (2) the protective instrumentation is within its normal operating range, (3) the pressurizer is capable of being in an OPERABLE status with a steam bubble, and (4) the reactor pressure vessel is above its minimum RT_{NDT} temperature.

←(DRN 05-896, Ch. 41; 06-790, Ch. 46)

Add INSERT 2a

BORATION SYSTEMS (Continued)

→(DRN 04-1243, Ch. 38)

The contained water volume limits include allowance for water not available because of discharge line location, instrument tolerances, and other physical characteristics. The unusable water volume in one Boric Acid Makeup Tank is half the unusable water volume when using two Boric Acid Makeup Tanks. Consequently, Figures 3.1-1 and 3.1-2 are provided for using one or two Boric Acid Makeup Tanks to satisfy the requirements of TS 3.1.2.2 and 3.1.2.8.

The 60 °F minimum Boric Acid Makeup Tank solution indicated temperature limit insures that the boron will not precipitate even at the maximum allowed boron concentration when instrument accuracies are considered. The precipitation temperature at the maximum allowed Boric Acid Makeup Tank boron concentration is 50.2 °F. The 60 °F minimum indicated temperature limit also insures that the minimum Boric Acid Makeup Tank solution temperature assumed in the safety analysis (49 °F) is bounded. The 55 °F Reactor Auxiliary Building temperature prerequisite for monitoring Boric Acid Makeup Tank solution temperature is acceptable due to the increased accuracy of the Reactor Auxiliary Building temperature indications available on the plant monitoring computer.

←(DRN 04-1243, Ch. 38)

The OPERABILITY of ~~one boron injection~~ system during REFUELING ensures that this system is availab~~le fo~~ INSERT 2b trol while in MODE 6.

→(DRN 04-1243, Ch. 38)

←(DRN 04-1243, Ch. 38)

3/4.1.2.9 BORON DILUTION

This specification is provided to prevent a boron dilution event, and to prevent a loss of SHUTDOWN MARGIN should an inadvertent boron dilution event occur. Due to boron concentration requirements for the RWSP and boric acid makeup tanks, the only possible boron dilution that would remain undetected by the operator occurs from the primary makeup water through the CVCS system. Isolating this potential dilution path or the OPERABILITY of the startup channel high neutron flux alarms, which alert the operator with sufficient time available to take corrective action, ensures that no loss of SHUTDOWN MARGIN and unanticipated criticality occur.

The ACTION requirements specified in the event startup channel high neutron flux alarms are inoperable provide an alternate means to detect boron dilution by monitoring the RCS boron concentration to detect any changes. The frequencies specified in the COLR provide the operator sufficient time to recognize a decrease in boron concentration and take appropriate corrective action without loss of SHUTDOWN MARGIN. More frequent checks are required with more charging pumps in operation due to the higher potential boron dilution rate.

INSERT 2b

BORON DILUTION (Continued)

The surveillance requirements specified provide assurance that the startup channel high neutron flux alarms remain OPERABLE and that required valve and electrical lineups remain in effect.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

The specifications of this section ensure that (1) acceptable power distribution limits are maintained, (2) the minimum SHUTDOWN MARGIN is maintained, and (3) the potential effects of CEA misalignments are limited to acceptable levels.

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.

The ACTION statements applicable to a stuck or untrippable CEA, or to a large misalignment (greater than or equal to 19 inches) of two or more CEAs, require a prompt shutdown of the reactor since either of these conditions may be indicative of a possible loss of mechanical functional capability of the CEAs and in the event of a stuck or untrippable CEA, the loss of SHUTDOWN MARGIN. CEAs that are confirmed to be inoperable due to problems other than addresed by ACTION a. of TS 3.1.3.1 and that are trippable, will not impact SHUTDOWN MARGIN as long as their relative positions satisfy the applicable alignment requirements.

For small misalignments (less than 19 inches) of the CEAs, there is (1) a small effect on the time dependent long-term power distributions relative to those used in generating LCOs and LSSS setpoints, (2) a small effect on the available SHUTDOWN MARGIN, and (3) a small effect on the ejected CEA worth used in the safety analysis. Therefore, the ACTION statement associated with trippable but small misalignments of CEAs permits a 1-hour time interval during which attempts may be made to restore the CEA to within its alignment requirements. The 1-hour time limit is sufficient to (1) identify causes of a misaligned CEA, (2) take appropriate corrective action to realign the CEAs, and (3) minimize the effects of xenon redistribution. Problems may also cause more than one control rod to be immovable where the control rods continue to be trippable. With trippable but multiple inoperable rods: the alignment limits and restriction on THERMAL POWER in accordance with the provisions of Specification 3.1.3.6 for insertion limits, assures fuel rod integrity during continued operation. These provisions are sufficient to allow 72 hours to restore the inoperable rods to operable status when it is confirmed that the cause of the immovable rods is an electrical problem in the rod control system or an electrical or mechanical

Add INSERT 1a

MOVABLE CONTROL ASSEMBLIES (Continued)

continued operations when the positions of CEAs with inoperable position indicators can be verified by the "Full In" or "Full Out" limits.

CEA positions and OPERABILITY of the CEA 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 LCO's are satisfied.

The arithmetic average CEA drop time restriction is consistent with the assumed CEA drop time used in the safety analyses. The maximum CEA drop time restriction limits the CEA drop time distribution about the a[illegible] Add INSERT 2b used to support the safety analyses. Measurement with T_{avg} g[illegible] equal to 520°F and with all reactor coolant pumps operating ensures that the meausured drop times will be representative of insertion times experienced during a reactor trip at operating conditions. The CEA drop time restriction is representative of the design and operating conditions for Cycle 3 and reverification may be required for (1) any fuel management change that significantly affects the core wide axial or radial power profiles, and (2) any mechanical, flow, control, or CEA location changes that would significantly affect the CEA drop time distribution.

The establishment of LSSS and LCOs requires that the expected long and short-term behavior of the radial peaking factors be determined. The long term behavior relates to the variation of the steady-state radial peaking factors with core burnup and is affected by the amount of CEA insertion assumed, the portion of a burnup cycle over which such insertion is assumed, and the expected power level variation throughout the cycle. The short term behavior relates to transient perturbations to the steady-state radial peaks due to radial xenon redistribution. The magnitudes of such perturbations depend upon the expected use of the CEAs during anticipated power reductions and load maneuvering. Analyses are performed based on the expected mode of operation of the NSSS (base loaded, or load maneuvering) and from these analyses CEA insertions are determined and a consistent set of radial peaking factors defined. The Long Term Steady State and Short Term Insertion Limits are determined based upon the assumed mode of operation used in the analyses and provide a means of preserving the assumptions on CEA insertions used. The limits specified serve to limit the behavior of the radial peaking factors within the bounds determined from analysis. The actions specified serve to limit the extent of radial xenon redistribution effects to those accommodated in the analyses. The Long and Short Term Insertion Limits of Specification 3.1.3.6 are specified for the plant which has been designed for primarily base loaded operation but which has the ability to accommodate a limited amount of load maneuvering.

The Transient Insertion Limits of Specification 3.1.3.6 and the Shutdown CEA Insertion Limits of Specification 3.1.3.5 ensure that (1) the minimum SHUTDOWN MARGIN is maintained, and (2) the potential effects of a CEA ejection accident are limited to acceptable levels. Long-term operation at the Transient Insertion Limits is not permitted since such operation could have effects on the core power distribution which could invalidate assumptions used to determine the behavior of the radial peaking factors. Insertion of Reg. Groups 5 and 6 is permitted to be essentially tip-to-tip within the limits imposed by the

MOVABLE CONTROL ASSEMBLIES (Continued)

Transient Insertion Limit Line. This method of insertion is protected from sequence errors by the Core Protection Calculators.

→ (DRN 02-632)

← (DRN 02-632)

Add INSERT 2b

The additional uncertainty terms included in the CPC's for transient protection are credited in the limits specified in the COLR since this curve is intended to monitor the LCO only during steady state operation.

Add INSERT 2b

→ **(DRN 03-656, Ch. 24)**

3/4.2.2 PLANAR RADIAL PEAKING FACTORS - Fxy

← **(DRN 03-656, Ch. 24)**

Limiting the values of the PLANAR RADIAL PEAKING FACTORS (F^{c}_{xy}) used in the COLSS and CPCs to values equal to or greater than the measured PLANAR RADIAL PEAKING FACTORS (F^{m}_{xy}) provides assurance that the limits calculated by COLSS and the CPCs remain valid. Data from the incore detectors are used for determining the measured PLANAR RADIAL PEAKING FACTORS. A minimum core power at 20% of RATED THERMAL POWER is assumed in determining the PLANAR RADIAL PEAKING FACTORS. The 20% RATED THERMAL POWER threshold is due to the neutron flux detector system being inaccurate below 20% core power. Core noise level at low power is too large to obtain usable detector readings. The periodic Surveillance Requirements for determining the measured PLANAR RADIAL PEAKING FACTORS provide assurance that the PLANAR RADIAL PEAKING FACTORS used in COLSS and the CPCs remain valid throughout the fuel cycle. Determining the measured PLANAR RADIAL PEAKING FACTORS after each fuel loading prior to exceeding 70% of RATED THERMAL POWER provides additional assurance that the core was properly loaded.

Add INSERT 2a

3/4.2.3 AZIMUTHAL POWER TILT - T_q

The limitations on the AZIMUTHAL POWER TILT are provided to ensure that design safety margins are maintained. The LCO requires the maximum azimuthal tilt during normal steady state power operation to be less than or equal to that specified in the COLR. With AZIMUTHAL POWER TILT greater than the limit specified in the COLR, operation is restricted to only those conditions required to identify the cause of the tilt. However, Action item b.2 allows 24 hours to restore the tilt to less than or equal to the limit specified in the COLR following a CEA misalignment event (i.e., CEA drop). A CEA misalignment event causes an asymmetric core power generation and an increase in xenon concentration in the vicinity of the dropped rod. This event may cause the azimuthal tilt to exceed the limit specified in the COLR. The 2 hour action time to reduce core power is not sufficient to recover from the xenon transient. The 24 hour period allows for correction of the misaligned CEA and allows time for the xenon redistribution effects to dampen out due to radioactive decay and absorption. The reduction in xenon concentration (which is aided by operation at full power) will in turn reduce the tilt below the COLR limit.

The 24 hour period is applicable only to a CEA misalignment where the cause of the tilt has been identified. It is based on the time required or the expected xenon transient to dampen out. All other conditions (not due to a CEA misalignment) where the azimuthal tilt exceeds the limit specified in the COLR require action within the specified 2 hours.

The tilt is normally calculated by COLSS. A minimum core power of 20% of RATED THERMAL POWER is assumed by the CPCs in its input to COLSS for calculation of AZIMUTHAL POWER TILT. The 20% RATED THERMAL POWER threshold is due to the neutron flux detector system being inaccurate below 20% core power. Core noise level at low power is too large to obtain usable detector readings. The Surveillance Requirements specified when COLSS is out of service provide an acceptable means of detecting the presence of a steady-state tilt. It is necessary to explicitly account for power asymmetries in the COLSS and CPCs because the radial peaking factors used in the core power distribution calculations are based on an untilted power distribution.

AZIMUTHAL POWER TILT - Tq (Continued)

AZIMUTHAL POWER TILT is measured by assuming that the ratio of the power at any core location in the presence of a tilt to the untilted power at the location is of the form:

$$P_{tilt}/P_{untilt} = 1 + T_q \, g \cos(\theta - \theta_o)$$

where:

T_q is the peak fractional tilt amplitude at the core periphery

g is the radial normalizing factor

θ is the azimuthal core location

θ_o is the azimuthal core location of maximum tilt

P_{tilt}/P_{untilt} is the ratio of the power at a core location in the presence of a tilt to the power at that location with no tilt.

Add INSERT 2b

3/4.2.4 DNBR MARGIN

The limitation on DNBR as a function of AXIAL SHAPE INDEX represents a conservative envelope of operating conditions consistent with the safety analysis assumptions and which have been analytically demonstrated adequate to maintain an acceptable minimum DNBR throughout all anticipated operational occurrences. Operation of the core with a DNBR at or above this limit provides assurance that an acceptable minimum DNBR will be maintained.

Either of the two core power distribution monitoring systems, the Core Operating Limit Supervisory System (COLSS) and the DNBR channels in the Core Protection Calculators (CPCs), provides adequate monitoring of the core power distribution and is capable of verifying that the DNBR does not violate its limits. The COLSS performs this function by continuously monitoring the core power distribution and calculating a core operating limit corresponding to the allowable minimum DNBR. The COLSS calculation of core power operating limit based on the minimum DNBR limit includes appropriate penalty factors which provide a 95/95 probability/confidence level that the core power calculated by COLSS, based on the minimum DNBR limit, is conservative with respect to the actual core power limit. These penalty factors are determined from the uncertainties associated with planar radial peaking measurements, state parameter measurement, software algorithm modelling, computer processing, rod bow, and core power measurement.

Parameters required to maintain the margin to DNB and total core power are also monitored by the CPCs. Therefore, in the event that the COLSS is not being used, operation within the limits specified in the COLR can be maintained by utilizing a predetermined DNBR as a function of AXIAL SHAPE INDEX and by monitoring the CPC trip channels. The above listed uncertainty and penalty factors plus those associated with startup test acceptance criteria are also included in the CPCs which assume a minimum core power of 20% of RATED THERMAL POWER. The 20% RATED THERMAL POWER threshold is due to the neutron flux detector system being less accurate below 20% core power. Core noise level at low power is too large to obtain usable detector readings.

BASES

Add INSERT 2b

DNBR MARGIN (Continued)

A DNBR penalty factor has been included in the COLSS and CPC DNBR calculations to accommodate the effects of rod bow. The amount of rod bow in each assembly is dependent upon the average burnup experienced by that assembly. Fuel assemblies that incur higher average burnup will experience a greater magnitude of rod bow. Conversely, lower burnup assemblies will experience less rod bow. In design calculations, the penalty for each batch required to compensate for rod bow is determined from a batch's maximum average assembly burnup applied to the batch's maximum integrated planar-radial power peak. A single net penalty for COLSS and CPC is then determined from the penalties associated with each batch, accounting for the offsetting margins due to the lower radial power peaks in the higher burnup batches.

Add INSERT 2a

3/4.2.5 RCS FLOW RATE

This specification is provided to ensure that the actual RCS total flow rate is maintained at or above the minimum value used in the LOCA safety analyses, and that the DNBR is maintained within the safety limit for Anticipated Operational Occurrences (AOO).

3/4.2.6 REACTOR COOLANT COLD LEG TEMPERATURE

→(DRN 04-1243, Ch. 38)

This specification is provided to ensure that the actual value of reactor coolant cold leg temperature is maintained within the range of values used in the safety analyses, with adjustment for instrument accuracy of ±3°F, and that the peak linear heat generation rate and the moderator temperature coefficient effects are validated. The safety analysis assumes that cold leg temperature is maintained between 533°F and 552°F or indicated temperatures of 536°F and 549°F.

←(DRN 04-1243, Ch. 38)

3/4.2.7 AXIAL SHAPE INDEX

→(DRN 02-458, Ch. 12)

This specification is provided to ensure that the actual value of AXIAL SHAPE INDEX is maintained within the range of values used in the safety analyses, to ensure that the peak fuel centerline temperature and DNBR remain within the safety limits for Anticipated Operational Occurrences (AOO).

←(DRN 02-458, Ch. 12)

3/4.2.8 PRESSURIZER PRESSURE

→(DRN 04-1243, Ch. 38)

This specification is provided to ensure that the actual value of pressurizer pressure is maintained within the range of values used in the safety analyses. The inputs to CPCs and COLSS are the most limiting. The values are adjusted for an instrument uncertainty of ± 35 psi. The safety analysis assumes that pressurizer pressure is maintained between 2090 psia and 2310 psia or indicated pressurizer pressures of 2125 psia and 2275 psia.

←(DRN 04-1243, Ch. 38)

3/4.3.1 and 3/4.3.2 REACTOR PROTECTIVE AND ENGINEERED SAFETY FEATURE ACTUATION SYSTEMS INSTRUMENTATION (Continued)

When one of the inoperable channels is restored to OPERABLE status, subsequent operation in the applicable MODE(S) may continue in accordance with the provisions of ACTION 19.

Because of the interaction between process measurement circuits and associated functional units as listed in the ACTIONS 19 and 20, placement of an inoperable channel of Steam Generator Level in the bypass or trip condition results in corresponding placements of Steam Generator ΔP (EFAS) instrumentation. Depending on the number of applicable inoperable channels, the provisions of ACTIONS 19 and 20 and the aforesaid scenarios for Steam Generator ΔP (EFAS) would govern.

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. The ~~quarterly~~ frequency for the channel functional tests for these systems comes from the analyses presented in topical report CEN-327: RPS/ESFAS Extended Test Interval Evaluation, as supplemented.

Testing frequency for the Reactor Trip Breakers (RTBs) is described and analyzed in CEN NPSD-951. The ~~quarterly~~ RTB channel functional test and RPS logic channel functional test are scheduled and performed such that RTBs are verified OPERABLE at least every 6 weeks to accommodate the appropriate vendor recommended interval for cycling of each RTB.

RPS\ESFAS Trip Setpoints values are determined by means of an explicit setpoint calculation analysis. A Total Loop Uncertainty (TLU) is calculated for each RPS/ESFAS instrument channel. The Trip Setpoint is then determined by adding or subtracting the TLU from the Analytical Limit (add TLU for decreasing process value; subtract TLU for increasing process value). The Allowable Value is determined by adding an allowance between the Trip Setpoint and the Analytical Limit to account for RPS/ESFAS cabinet Periodic Test Errors (PTE) which are present during a CHANNEL FUNCTIONAL TEST. PTE combines the RPS/ESFAS cabinet reference accuracy, calibration equipment errors (M&TE), and RPS/ESFAS cabinet bistable Drift. Periodic testing assures that actual setpoints are within their Allowable Values. A channel is inoperable if its actual setpoint is not within its Allowable Value and corrective action must be taken. Operation with a trip set less conservative than its setpoint, but within its specified ALLOWABLE VALUE is acceptable on the basis that the difference between each trip Setpoint and the ALLOWABLE VALUE is equal to or less than the Periodic Test Error allowance assumed for each trip in the safety analyses.

>(EC-26338, Ch. 67)

The Core Protection Calculator, High Logarithmic Power (HLP), and Reactor Coolant System Flow use a single bistable to initiate both the permissive and automatic operating bypass removal functions. A single bistable cannot both energize and de-energize at a single, discrete value due to hysteresis. The CPC automatic bypass removal and permissive for the

<(EC-26338, Ch. 67)

3/4.3.1 and 3/4.3.2 REACTOR PROTECTIVE AND ENGINEERED SAFETY FEATURE ACTUATION SYSTEMS INSTRUMENTATION (Continued)

>(EC-26338, Ch. 67)
HLP trip bypass occur at the bistable setpoint (nominally 10^{-4}% power). However, the HLP automatic bypass removal and permissive for CPC trip bypass occur at the reset value of the bistable. Also note if the bistable setpoint is changed as part of the Special Test Exception 3.10.3, the same dead band transition is applicable.
<(EC-26338, Ch. 67)

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function 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 verified by any series of sequential, overlapping, or total channel measurements, including allocated sensor response time, such that the response time is verified. Allocations for sensor response times may be obtained from records of test results, vendor test data, or vendor engineering specifications. Topical Report CE NPSD-1167-A, "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 topical report. Respose time verification for other sensor types must be demonstrated by test. The allocation of sensor response times must be verified prior to placing a new component in operation and reverified after maintenance that ~~may adversely affect the sensor response time.~~

Add INSERT 2b

~~>(EC-26338, Ch. 67)~~

~~In the applicable logarithmic power modes, with the Logarithmic Power circuit inoperable or in test, the associated functional units of Local Power Density-High, DNBR-Low, and Reactor Coolant Flow-Low should be placed in the bypassed or tripped condition. With logarithmic power greater than 10^{-4}% bistable setpoint and Local Power Density-High, DNBR-Low, and Reactor Coolant Flow-Low no longer bypassed (either through automatic or manual action), these functional units may be considered OPERABLE.~~

~~<(EC-26338, Ch. 67)~~

~~TABLE 3.3-1, Functional Unit 13, Reactor Trip Breakers~~

The Reactor Trip Breakers Functional Unit in Table 3.3-1 refers to the reactor trip breaker channels. There are four reactor trip breaker channels. Two reactor trip breaker channels with a coincident trip logic of one-out-of-two taken twice (reactor trip breaker channels A or B, and C or D) are required to produce a trip. Each reactor trip breaker channel consists of two reactor trip breakers. For a reactor trip breaker channel to be considered OPERABLE, both of the reactor trip breakers of that reactor trip breaker channel must be capable of performing their safety function (disrupting the flow of power in its respective trip leg). The safety function is satisfied when the reactor trip breaker is capable of automatically opening, or otherwise opened or racked-out.

If a racked-in reactor trip breaker is not capable of automatically opening, the ACTION for an inoperable reactor trip breaker channel shall be entered. The ACTION shall not be exited unless the reactor trip breaker capability to automatically open is restored, or the reactor trip breaker is opened or racked-out.

>(EC-12084, Ch. 57)

TABLES 3.3-3 and 4.3-2, Functional Unit 6, Loss of Power (LOV)

The Loss of Power Functional Unit 6 in Tables 3.3-3 and 4.3-2 refers to the undervoltage relay channels that detect a loss of bus voltage on the 4kV (A3 & B3) and 480V (A31 & B31) safety buses and a sustained degraded voltage condition on 4kV (A3 & B3) safety buses. The intent of these relays is to ensure that the Emergency Diesel Generator starts on a loss of voltage or a sustained degraded voltage condition. The response time SR in TS 3.3.2 ensures that Bus A3 and B3 undervoltage relays trip and generate a Loss of Voltage (LOV) signal in 2 seconds for initiation of the EDG start. The response time for Bus AB3 and AB31 relays is not as critical as the Bus A3 and B3 undervoltage relays. Bus AB3 and AB31 undervoltage relays [4KVEREL3AB-1A(1B)(1C) and SSDEREL31AB-1A(1B)(1C)] strip bus loads upon an undervoltage condition to preclude any perturbations which might affect the A and B buses and prepare the bus to be energized by an EDG with subsequent loading by the sequencer. Bus AB3 and AB31 undervoltage relays do not provide an EDG start signal. Therefore, TS 3/4.3.2, Tables 3.3-3 and 4.3-2 functional unit 6 requirements, are not applicable to AB3 Bus and AB31 Bus undervoltage relays.

Add INSERT 2b

If an AB Bus undervoltage relay becomes inoperable, initiate a condition report and consider operability of the associated EDG based on the AB Bus loads when evaluating the failure.

<(EC-12084, Ch. 57)

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that: (1) the radiation levels are continually measured in the areas served by the individual channels; (2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded; and (3) sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," December 1980 and NUREG-0737, "Clarification of TMI Action Plan Requirements," November 1980.

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION (Continued)

>(DRN 03-871, Ch. 27)

The Steam Generator Blowdown Process Radiation Monitor and the Component Cooling Water Process Radiation Monitors A, B, and A/B are designed to detect leakage into the monitored system from components that may contain radioactive contamination. These process monitors have an alarm function that annunciates when activity levels at or above the alarm setpoints are detected. This alarm provides an opportunity for the operator to isolate the system and/or equipment and perform investigative activities to locate and repair the source of leakage. By design, the sample flow for these monitors is provided by the hydraulic head established in the monitored system during system operation. When flow in the monitored system is terminated, which would occur if the system was being taken out of service for maintenance, the monitor will go into an alarmed condition due to loss of sample flow. If this alarmed condition is due solely to the termination of the flow in the monitored system, and the process monitors were OPERABLE prior to flow termination, then these radiation monitors should be considered OPERABLE. Therefore, the performance of ACTION 28 is not appropriate or required for this condition. During this condition, the monitors are effectively in a standby state and are capable of automatically performing their intended safety function once flow is re-established in the monitored system. The performance of the ~~shiftly~~ channel check (and other surveillances, if required) should continue during this condition to maintain compliance with the requirements of this Technical Specification.

<(DRN 03-871, Ch. 27)

Add INSERT 2b

>(EC-38571, Ch. 71)

The fuel handling accident (UFSAR Section 15.7.3.4) analysis assumes protection against load movements with or over irradiated fuel assemblies that could cause fuel assembly damage. Examples of load movements include movement of new fuel assemblies, irradiated fuel assemblies, and the dummy fuel assembly. The load movements do not include the movement over assemblies in a transfer cask using a single-failure-proof handling system. The load movements do not include the movement of the spent fuel machine or refuel machine without loads attached. It also does not include load movements in containment when the reactor vessel head or Upper Guide Structure is still installed. Load movements also exclude suspended loads weighing less than 1000 lbm (e.g. Westinghouse analysis CN-NFPE-09-57 describes no fuel failure for loads weighing less than 1000 lbm based upon the 2000 lbm analysis for drops distributed over two assemblies).

<(EC-38571, Ch. 71)

3/4.3.3.2 INCORE DETECTORS

This section has been deleted.

3/4.3.3.3 SEISMIC INSTRUMENTATION

This section has been deleted.

3/4.3.3.4. METEOROLOGICAL INSTRUMENTATION

This section has been deleted.

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criterion 19 of 10 CFR Part 50.

Add INSERT 2b

3/4.3.3.6 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. The availability of accident monitoring instrumentation is important so that responses to corrective actions can be observed and the need for, and magnitude of, further actions can be determined. These essential instruments are identified by plant specific documents addressing the recommendations of Regulatory Guide 1.97, as required by Supplement 1 to NUREG-0737, "TMI Action Items." Table 3.3.10 includes most of the plant's RG 1.97 Type A and Category 1 variables. The remaining Type A/Category 1 variables are included in their respective specifications. Type A variables are included in this LCO because they provide the primary information required to permit the control room operator to take specific manually controlled actions, for which no automatic control is provided, that are required for safety systems to accomplish their safety functions for Design Basis Accidents (DBAs).
Category 1 variables are the key variables deemed risk significant because they are needed to: (1) Determine whether other systems important to safety are performing their intended functions; (2) Provide information to the operators that will enable them to determine the potential for causing a gross breach of the barriers to radioactivity release; and (3) Provide information regarding the release of radioactive materials to allow for early indication of the need to initiate action necessary to protect the public as well as to obtain an estimate of the magnitude of any impending threat.

>(DRN 03-656, Ch. 24)

With the number of OPERABLE accident monitoring channels less than the Required Number of Channels shown in Table 3.3-10, the inoperable channel should be restored to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channel (or in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring accident monitoring instrumentation during this interval. If the 30 day AOT is not met, a Special Report approved by OSRC is required to be submitted to the NRC within the following 14 days. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative Actions. This Action is appropriate in lieu of a shutdown requirement, given the likelihood of plant conditions that would require information provided by this instrumentation. Also, alternative Actions are identified before a loss of functional capability condition occurs.

<(DRN 03-656, Ch. 24)

With the number of OPERABLE accident monitoring channels less than the Minimum Channels OPERABLE requirements of Table 3.3-10; at least one of the inoperable channels should be restored to OPERABLE status within 7 days. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrumentation operation and the availability of alternate means to obtain the required information.

Continuous operation with less than the Minimum Channels OPERABLE requirements is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the accident

monitoring instrumentation. Therefore, requiring restoration of one inoperable channel limits the risk that the variable will be in a degraded condition should an accident occur. If the 7 day requirement is not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 4 within 12 hours. The completion time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

TS 3/4.3.3.6 applies to the following instrumentation: ESFIPI6750 A, ESFIPR6750 B, ESFIPR6755 A&B, RC ITI0122 HA, RC ITI0112 HB, RC ITI0122 CA, RC ITI0112 CB, RC IPI0102 A,B,C,&D, RC ILI0110 X&Y, SG ILI1113 A,B,C,&D, SG ILI1123 A,B,C,&D, SG ILI1115 A2&B2, SG ILI1125 A2&B2, SI ILI7145 A, SI ILR7145 B, all CET's, all Category 1 Containment Isolation Valve Position Indicators, EFWILI9013 A&B, HJTC's, and ENIIJI0001 C&D.

Add INSERT 2b

3/4.3.3.7 CHEMICAL DETECTION SYSTEMS

The chemical detection systems are the chlorine and broad range toxic gas detection systems.

The OPERABILITY of the chemical detection systems ensures that sufficient capability is available to promptly detect and initiate protective action in the event of an accidental chemical release.

The chemical detection systems provide prompt detection of toxic gas releases which could pose an actual threat to safety of the nuclear power plant or significantly hamper site personnel in performance of duties necessary for the safe operation of the plant.

The broad range toxic gas detection system utilizes a Fourier Transform Infrared (FTIR) analysis technique, and therefore, the system is sensitive to a broad range of gases including ammonia. The system is sensitive to normal fluctuations of both atmospheric and chemical composition which affect the Waterford 3 site. The setpoints associated with the system are based on testing and operating experience. Setpoints are set based on control room habitability calculations as described in the FSAR, while providing reliable operation and the optimum detection of toxic gases. The setpoint is therefore subject to change with operating experience such as a result of changes in the Waterford 3 area chemical inventory. The setpoint is established and controlled by procedure.

The LCO and ACTIONs for the broad range gas detection system are annotated such that the system instrument automatic background/reference spectrum check does not constitute system inoperability under the following conditions: (1) both channels are operable and (2) both channels are not performing the check simultaneously. The instrument automatically performs the background/reference spectrum check. During the time that the automatic background/reference spectrum check is taking place (which will be two minutes or less), the channel will not perform the function of isolation of the control room. With both channels OPERABLE, the other system will be available to perform the control room isolation function in

the event of a toxic gas incident. With one channel taken out of service (e.g., for maintenance), when the second channel performs the automatic background/reference spectrum check, both channels will be unable to perform the function of isolating the control room for the short time of the background/reference spectrum check. Qualitative analysis based on a quantitative risk assessment has shown that the impact on operator incapacitation and subsequent core damage risk of the background/reference spectrum check while one monitor is out of service for its 7 day allowed outage time is negligible. Therefore, entry into the ACTION solely due to the automatic background/reference spectrum check is not required.

No specific manual CHANNEL CALIBRATION is required as the system instrument performs this function as the background/reference spectrum check automatically for two minutes or less on a frequency of once every hour to once every four hours. ~~The exact frequency is established based on operating experience with the instrument.~~

A CHANNEL CHECK is performed ~~once every 12 hours~~ Add INSERT 1 to compare channel indications of the same parameter. The performance of the CHANNEL CHECK ensures that a gross failure of the instrument has not occurred. Significant deviations from the expected readings and actual readings could be an indication of a malfunction within the unit. The CHANNEL CHECK will detect gross system failure; thus, it is the key to verifying the instrument continues to operate properly between each CHANNEL FUNCTIONAL TEST.

A CHANNEL FUNCTIONAL TEST is performed to ensure the entire channel will perform its required function. This test includes introduction of a standard gas and verification of isolation of the control room. The time of the occurrence of the background/reference spectrum check is set during the CHANNEL FUNCTIONAL TEST such that both channels are not out of service simultaneously.

Add INSERT 2b

3/4.3.3.8 This section deleted

3/4.3.3.9 This section deleted

3/4.3.3.10 This section has been deleted.

3/4.3.3.11 EXPLOSIVE GAS MONITORING INSTRUMENTATION

This instrumentation includes provisions for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the WASTE GAS HOLDUP SYSTEM.

Add INSERT 2b

Add INSERT 2b

3/4.4.2 SAFETY VALVES

The pressurizer code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2750 psia. Each safety valve is designed to relieve 4.6 x 10^5 lbs per hour of saturated steam at the valve setpoint. The relief capacity of a single safety valve is adequate to relieve any overpressure condition which could occur during shutdown. In the event that no safety

SAFETY VALVES (Continued)

valves are OPERABLE, an operating shutdown cooling 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 2750 psia. The combined relief capacity of these valves is sufficient to limit the system pressure to within its Safety Limit of 2750 psia following a complete loss of turbine generator load while operating at RATED THERMAL POWER and assuming no reactor trip until the first Reactor Protective System trip setpoint (Pressurizer Pressure-High) is reached and also assuming no operation of the steam dump valves.

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

3/4.4.3 PRESSURIZER

An OPERABLE pressurizer provides pressure control for the Reactor Coolant System during operations with both forced reactor coolant flow and with natural circulation flow. The minimum water level in the pressurizer assures the pressurizer heaters, which are required to achieve and maintain pressure control, remain covered with water to prevent failure, which could occur if the heaters were energized while uncovered. The maximum water level in the pressurizer ensures that this parameter is maintained within the envelope of operation assumed in the safety analysis. The maximum water level also ensures that the RCS is not a hydraulically solid system and that a steam bubble will be provided to accommodate pressure surges during operation. The steam bubble also protects the pressurizer code safety valves against water relief. The requirement to verify that on an SIAS test signal the pressurizer heaters are automatically shed from the emergency power sources is to ensure that the non-Class 1E heaters do not reduce the reliability of or overload the emergency power source. The requirement that a minimum number of pressurizer heaters be OPERABLE enhances the capability to control Reactor Coolant System pressure and establish and maintain natural circulation.

The auxiliary pressurizer spray is used to depressurize the RCS by cooling the pressurizer steam space. The auxiliary pressurizer spray is used during those periods when normal pressurizer spray is not available, such as the later stages of a normal RCS cooldown. The auxiliary pressurizer spray also distributes boron to the pressurizer when normal pressurizer spray is not available.

The auxiliary pressurizer spray is used, in conjunction with the throttling of the HPSI pumps, during the recovery from a steam generator tube rupture accident. The auxiliary pressurizer spray is also used during a natural circulation cooldown as a safety related means of RCS depressurization to achieve shutdown cooling system initiation conditions and subsequent COLD SHUTDOWN per the requirements of Branch Technical Add INSERT 2b 1.

→(DRN 06-916, Ch. 48)
←(DRN 06-916, Ch. 48)

→ (DRN 04-1223, Ch. 33)

→(DRN 07-203, Ch. 52)

Action c

←(DRN 07-203, Ch. 52)

If all required monitors are inoperable, no automatic means of monitoring leakage are available and immediate plant shutdown is required. ACTION must be initiated within 1 hour to be in MODE 3 within the next 6 hours and MODE 5 in the following 30 hours. These times are consistent with TS 3.0.3.

Surveillance Requirements

SR 4.4.5.1.a, 4.4.5.1.b - Channel Check

→(DRN 07-203, Ch. 52)

SR 4.4.5.1.a requires the performance of a CHANNEL CHECK of the required containment atmosphere particulate radioactivity monitor. SR 4.4.5.1.b requires the ~~performance of a CHANNEL CHECK on the required containment sump level monitor/~~time rate of change. The CHANNEL CHECK is not required to be performed on the containment sump flow monitor (weir). The check gives reasonable confidence the channel is operating properly. ~~The frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.~~ Add INSERT 2a

←(DRN 07-203, Ch. 52)

→(DRN 05-1333, Ch. 44)

SR 4.4.5.1.a, - Channel Functional Test

←(DRN 05-1333, Ch. 44)

SR 4.4.5.1.a requires the performance of a CHANNEL FUNCTIONAL TEST of the required containment atmosphere particulate radioactivity monitor. The test e[nsures the] Add INSERT 1a monitor can perform its function in the desired manner. The test verifies the alarm setpoint and relative accuracy of the instrument string. A successful test of the required contacts of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests ~~at least once per refueling interval~~ with applicable extensions. ~~The frequency of 92 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.~~

→(DRN 05-1333, Ch. 44; DRN 07-203, Ch. 52)

←(DRN 07-203, Ch. 52)

SR 4.4.5.1.a, SR 4.4.5.1.b - Channel Calibration

←(DRN 05-1333, Ch. 44)

These SRs require the performance of a CHANNEL CALIBRATION for each of the RCS leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside containment. ~~The frequency of 18 months is a typical refueling cycle and considers channel reliability. Operating experience has shown this frequency is acceptable.~~

←(DRN 04-1223, Ch. 33)

3/4.4.5.2 OPERATIONAL LEAKAGE

> (EC-3173 Ch. 53)

MODE in the Applicability of the associated LCO if any of the following conditions are satisfied: (1) the SR has been performed within the surveillance interval (i.e. it is current) and is known not to be failed or (2) the SR is required to be met, but not performed, in the MODE to be entered and is known not to be failed. The initial surveillance performance will be completed within 12 hours once the plant is at stable operating pressure following the establishment of steady state conditions. Other instruments such as those contained in TS 3/4.4.5.1 can be utilized to determine whether RCS operational leakage limits are being exceeded prior to initial performance. Add INSERT 1a

Once the plant establishes steady state operation, 12 hours is allowed for completing the SR. If the SR was not performed within this 12 hour interval, there would then be a failure to perform the SR within the specified interval, and the provisions of 4.0.3 would apply. Should the ~~72 hour~~ interval be exceeded while steady state operation has not been established, this NOTE allows 12 hours after steady state operation has been established to perform the SR. The SR is still considered to be performed within the surveillance interval. Therefore, if the Surveillance was not performed ~~within the 72 hour~~ (plus the extension allowed by 4.0.2) interval, but steady state operation was not established, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of 4.0.4 occurs when changing MODES, even with the ~~72 hour~~ surveillance interval not met, provided operation does not exceed 12 hours with the establishment of steady state operation.

< (EC-3173 Ch. 53)

Add INSERT 2a

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 valves is IDENTIFIED LEAKAGE and will be considered as a portion of the allowable limit.

Add INSERT 2b

> (DRN 04-1243, Ch. 38; 06-916, Ch. 48)

The primary to secondary leakage limit of 75 gallons per day through any one SG is based on the operational leakage performance criterion in NEI 97-06. The Steam Generator Program operational leakage performance criterion in NEI 97-06 states, "The RCS operational primary to secondary leakage through any one SG shall be limited to 150 gallons per day." The NEI 97-06 limit is based on operating experience with SG tube degradation mechanisms that result in tube leakage. The operational leakage rate criterion (since it is less than 150 gpd through any one SG) in conjunction with the implementation of the Steam Generator Program is an effective measure for minimizing the frequency of steam generator tube ruptures.

< (DRN 04-1243, Ch. 38; 06-916, Ch. 48)

OPERATIONAL LEAKAGE (Continued)

>(DRN 04-1243, Ch. 38)

Steam generator tube cracks having primary-to-secondary leakage less than 150 gpd per steam generator during operation will have an acceptable margin of safety to withstand loads imposed during normal operation and postulated accidents (Reference NEI 97-06). Due to the proximity of the east atmospheric dump valve to the east control room intake, the primary-to-secondary leakage limit required to achieve acceptable radiological consequences, for accidents that rely on reactor coolant system cooldown using the steam generators, is limiting. Therefore, 75 gpd per steam generator is imposed as the primary-to-secondary operational leakage limit.

<(DRN 04-1243, Ch. 38)

PRESSURE BOUNDARY LEAKAGE of any magnitude is unacceptable since it may be indicative of an impending gross failure of the pressure boundary. Therefore, the presence of any PRESSURE BOUNDARY LEAKAGE requires the unit to be promptly placed in COLD SHUTDOWN.

>(LBDCR 13-003, Ch. 74)

Add INSERT 2a

3/4.4.6 DELETED

<(LBDCR 13-003, Ch. 74)

3/4.4.7 SPECIFIC ACTIVITY

>(DRN 03-173, Ch. 18; 05-131, Ch. 39)

The Code of Federal Regulations, 10 CFR 50.67 specifies the maximum total effective dose equivalent an individual offsite can receive during a design basis accident. The LCO contains specific activity limits for both DOSE EQUIVALENT I-131 and gross specific activity. The specific activity limits ensure that these doses are held within the appropriate 10 CFR 50.67 requirements (small fraction, well within, or within) during analyzed transients and accidents.

<(DRN 05-131, Ch. 39)

Operation with iodine specific activity levels greater than the LCO limit is permissible for up to 48 hours, provided the activity levels do not exceed 60 uCi/gm. A 48 hour limit was established because of the low probability of an accident occurring during this period. The dose consequences of an accident during this 48 hour period would not exceed the full 10 CFR 50.67 limits.

The surveillance requirements provide adequate assurance that excessive specific activity levels in the primary coolant will be detected in sufficient time to take corrective action.

<(DRN 03-173, Ch. 18)

Add INSERT 2b

The pressure-temperature limit lines shown on Figures 3.4-2 and 3.4-3 for reactor criticality and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR Part 50.

Add INSERT 2a

PRESSURE/TEMPERATURE LIMITS (Continued)

→(DRN 04-1241, Ch. 34)

The maximum RT_{NDT} for all Reactor Coolant System pressure-retaining materials, with the exception of the reactor pressure vessel, has been determined to be 90°F. The Lowest Service Temperature limit line shown on Figures 3.4-2 and 3.4-3 is based upon this RT_{NDT} since Article NB-2332 of Section III of the ASME Boiler and Pressure Vessel Code requires the Lowest Service Temperature to be RT_{NDT} + 100°F for piping, pumps, and valves. Below this temperature, the system pressure must be limited to a maximum of 20% of the system's hydrostatic test pressure of 3125 psia (as corrected for elevation). Instrument uncertainty is not included in the Figures 3.4-2 and 3.4-3.

←(DRN 04-1241, Ch. 34)

→(DRN 04-1233, Ch. 35; 04-1243, Ch. 38)

←(DRN 04-1233, Ch. 35; 04-1243, Ch. 38)

→(DRN 04-1241, Ch. 34)

The OPERABILITY of the shutdown cooling system relief valve or an RCS vent opening of greater than 5.6 square inches ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the RCS cold legs are less than or equal to 200°F. Each shutdown cooling system relief valve has adequate relieving capability to protect the RCS from overpressurization when the transient is either (1) the start of an idle RCP with the secondary water temperature of the steam generator less than or equal to 100°F above the RCS cold leg temperatures or (2) inadvertent safety injection actuation with injection into a water-solid RCS. The limiting transient includes simultaneous, inadvertent operation of three HPSI pumps, three charging pumps, and all pressurizer backup heaters in operation. Since SIAS starts only two HPSI pumps, a 20% margin is realized.

The restrictions on starting a reactor coolant pump in MODE 4 and with the reactor coolant loops filled in MODE 5, with one or more RCS cold legs less than or equal to 200°F, are provided in Specification 3.4.1.3 and 3.4.1.4 to prevent RCS pressure transients caused by energy additions from the secondary 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 100°F above each of the RCS cold leg temperatures. Maintaining the steam generator less than 100°F above each of the Reactor Coolant System cold leg temperatures (even with the RCS filled solid) or maintaining a large surge volume in the pressurizer ensures that this transient is less severe than the limiting transient considered above.

←(DRN 04-1241, Ch. 34)

Add INSERT 2b

→(DRN 03-1807, Ch. 30)

3/4.4.9 STRUCTURAL INTEGRITY This section is deleted.

←(DRN 03-1807, Ch. 30)

3/4.4.10 REACTOR COOLANT SYSTEM VENTS

Reactor Coolant System vents are provided to exhaust noncondensible gases and/or steam from the primary system that could inhibit natural circulation core cooling. The OPERABILITY of at least one reactor coolant system vent path from the reactor vessel head and the pressurizer steam space ensures the capability exists to perform this function.

The valve redundancy of the reactor coolant system vent paths serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a vent valve, power supply, or control system does not prevent isolation of the vent path.

The function, capabilities, and testing requirements of the reactor coolant system vent systems are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plan Requirements," November 1980.

Add INSERT 2b

3/4.5.1 SAFETY INJECTION TANKS (Continued)

The TS allow operation below 1750 psia with three SITs at reduced pressure and increased volume or four SITs at reduced SIT pressure and volume. CE NPSD-994 does not address operation with less than 3 SITs. Therefore, since CE NPSD-994 is not applicable at less than 1750 psia, a separate 1 hour ACTION consistent with the Waterford 3 licensing basis is provided. The limits for operation with a safety injection tank inoperable for any reason except boron concentration or inability to verify water level and pressure minimizes the time exposure of the plant to a LOCA event occurring concurrent with failure of an additional safety injection tank which may result in unacceptable peak cladding temperatures. If one of the required SITs cannot be restored within one hour, the full capability of one safety injection tank is not available and prompt action is required to place the reactor in a mode where this capability is not required. If more than two SITs are inoperable, then entry into 3.0.3 is required.

Add INSERT 1a and 'is used'

→(DRN 04-1559, Ch. 36)

~~Thirty one days is reasonable for~~ verification ~~to~~ determine that each SIT's boron concentration is within the required limits, because the static design of the SITs limits the ways in which the concentration can be changed. The ~~31 day~~ frequency is adequate to identify changes that could occur from mechanisms such as stratification or inleakage. Verifying boron concentration of the affected SIT within 6 hours after a 1% volume increase will identify whether inleakage has caused a reduction in boron concentration to below the required limit. It is not necessary to verify ~~boron concentration if~~ the added water is from the Refueling Water Storage Pool (RWSP), as lo[illegible]ined in the RWSP is within the SIT boron concentration requirements. This is consistent with the recommendations of NUREG-1366. Likewise, movement of water between SITs is within the confines of the tank system (not from an external makeup source) and is within the SIT boron concentration requirements for tank OPERABILITY, thus sampling is not required for these level changes.

Add INSERT 1a

The boron concentration in the SITs can be verified by either sampling or calculation. The sampling method requires a containment entry to obtain the SIT samples. The calculation method utilizes the initial and fill boron concentration and the initial, final, and fill volume of the SITs. The fill volume is the amount of delta-volume from the initial to the final volume. The fill boron concentration is the boron concentration from the source of the inleakage. If the source of the inleakage is unknown the RCS boron concentration will be used. The RCS boron concentration is the most limiting boron concentration that can leak into the SITs.

←(DRN 04-1559, Ch. 36)

The safety injection tank power operated isolation valves are considered to be "operating bypasses" in the context of IEEE Std. 279-1971, which requires that bypasses of a protective function be removed automatically whenever permissive conditions are not met. In addition, as these safety injection tank isolation valves fail to meet single failure criteria, removal of power to the valves is required.

Add INSERT 2b

ECCS SUBSYSTEMS (Continued)

When in mode 3 and with RCS temperature greater than or equal to 500°F two OPERABLE ECCS subsystems are required to ensure sufficient emergency core cooling capability is available to prevent the core from becoming critical during an uncontrolled cooldown (i.e., a steam line break) from greater than 500°F.

With the RCS temperature below 500°F and the RCS pressure below 1750 psia, one OPERABLE ECCS subsystem is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the limited core cooling requirements.

The trisodium phosphate dodecahydrate (TSP) stored in dissolving baskets located in the containment basement is provided to minimize the possibility of corrosion cracking of certain metal components during operation of the ECCS following a LOCA. The TSP provides this protection by dissolving in the sump water and causing its final pH to be raised to greater than or equal to 7.0. The requirement to dissolve a representative sample of TSP in a sample of water borated to be representative of post-LOCA sump conditions provides assurance that the stored TSP will dissolve in borated water at the postulated post-LOCA temperatures. A boron concentration of 3011 ppm boron is postulated to be representative of the highest post-LOCA sump boron concentration. Post LOCA sump pH will remain between 7.0 and 8.1 for the maximum (3011 ppm) and minimum (1504 ppm) boron concentrations calculated using the maximum and minimum post-LOCA sump volumes and conservatively assumed maximum and minimum source boron concentrations.

→ (DRN 02-1635, Ch. 16; DRN 03-445, Ch. 26)

With the exception of systems in operation, the ECCS pumps are normally in a standby, nonoperating mode. As such, flow path piping has the potential to develop voids and pockets of entrained gases. Maintaining the piping from the ECCS pumps to the RCS full of water ensures ~~that the system will perform properly, injecting its full capacity into the RCS upon demand.~~ This will prevent water hammer, pump cavitation, and pumping noncondensible gas (e.g., air, nitrogen, or hydrogen) into the reactor vessel following an SIAS or during SDC. The LPSI system has been evaluated for voids in the discharge piping. The piping system has been qualified for the hydraulic transient. In addition, the reactor has been qualified for an intrusion of a small gas bubble. Therefore, from a design basis standpoint, for injection capacity and prevention of water hammer, pump cavitation, and pumping noncondensible gas the LPSI system will be considered operable and full of water with the existence of voids in the system discharge legs. The ~~31 day~~ frequency takes into consideration the gradual nature of gas accumulation in the ECCS piping and the adequacy of the procedural controls governing system operation.

← (DRN 02-1635, Ch. 16; DRN 03-445, Ch. 26)

Add INSERT 2a

Add INSERT 1a

ECCS SUBSYSTEMS (Continued)

The Surveillance Requirements provided to ensure OPERABILITY of each component ensure that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance Requirements for throttle valve position stops and flow balance testing provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split betw[illegible]s in accordance with the assumptions used in the ECCS-LOCA analyse[illegible] an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

Add INSERT 2b

The requirement to verify the minimum pump differential pressure on recirculation flow ensures that the pump performance curve has not degraded below that used to show that the pump exceeds the design flow condition assumed in the safety analysis and is consistent with the requirements of ASME Section XI.

EMERGENCY CORE COOLING SYSTEMS

BASES

3/4.5.4 REFUELING WATER STORAGE POOL (RWSP)

The OPERABILITY of the refueling water storage pool (RWSP) as part of the ECCS also ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWSP minimum volume and boron concentration ensure that (1) sufficient water is available within containment to permit recirculation cooling flow to the core, and (2) the reactor will remain subcritical in the cold condition following mixing of the RWSP and the RCS water volumes with all CEAs inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

→(DRN 04-1243, Ch. 38)

The minimum contained borated water volume limit, 83% indicated, includes an allowance for water not usable because of pool discharge line location, other physical characteristics, and instrument uncertainty. The safety analysis assumes an available volume of 383,000 gallons which is bounded by the 83% level indicated.

←(DRN 04-1243, Ch. 38)

The lower limit on contained water volume, the specific boron concentration and the physical size (approximately 600,000 gallons) of the RWSP also ensure a pH value of between 7.0 and 11.0 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

→(DRN 06-188, Ch. 45)

The maximum limit on the RWSP temperature ensures that the assumptions used in the containment pressure analysis under design base accident conditions remain valid and avoids the possibility of containment overpressure. A RWSP minimum temperature of 50°F is the analytical limit assumed in the accident analyses. The TS minimum temperature of 55°F is specified to protect this analytical limit.

←(DRN 06-188, Ch. 45)

Add INSERT 2b

3/4.6 CONTAINMENT SYSTEMS

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

→(DRN 05-131, Ch. 39)

Primary CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the safety analyses. This restriction, in conjunction with the leakage rate limitation, will limit the SITE BOUNDARY radiation doses to within the limits of 10 CFR 50.67 during accident conditions.

←(DRN 05-131, Ch. 39)

Add INSERT 2a

3/4.6.1.2 CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the safety analyses at the peak accident pressure, P_a. As an added conservatism, the measured overall integrated leakage rate is further limited to $\leq 0.75\ L_a$ during the performance of the periodic Type A tests to account for possible degradation of the containment leakage barriers between leakage tests. Also, the summation of penetration leakages measured during Type B and C testing is limited to $0.6\ L_a$. At all other times between required leakage rate tests, overall containment leakage is limited to L_a. The maximum allowable containment leakage rate, L_a, is 0.5 % by weight of the containment air per 24 hours at the design basis accident pressure, P_a, of 44 psig.

The surveillance requirements for measuring leakage rates are consistent with the requirements of 10 CFR 50, Appendix J, Option B, and leakage rate testing is performed in accordance with the guidelines contained in Regulatory Guide 1.163, "Performanace-Based Containment Leak-Test Program". Leakage rate testing is conducted periodically as specified in the Containment Leakage Rate Testing Program.

The periodic performance of Type A, B and C tests verifies that the containment leakage rate does not exceed the levels assumed in the safety analyses.

Secondary containment bypass leakage paths previously indentified in Table 3.6-1 are now identified in the Technical Requirements Manual.

3/4.6.1.3 CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on CONTAINMENT INTEGRITY and containment leak rate. Surveillance testing of the air lock seals provides assurance that the overall air lock leakage will not become excessive due to seal damage during the intervals between air lock leakage tests.

3/4.6.1.4 INTERNAL PRESSURE

The limitations on containment internal pressure ensure that (1) the containment structure is prevented from exceeding its design negative pressure differential with respect to the annulus atmosphere of 0.65 psid, (2) the containment peak pressure does not exceed the design pressure of 44 psig during either LOCA or steam line break conditions, and (3) the minimum pressure of the ECCS performance analysis (BTP CSB 61) is satisfied.

The limit of +27 inches water (approximately 1.0 psig) for initial positive containment pressure is consistent with the limiting containment pressure and temperature response analyses inputs and assumptions.

The limit of 14.275 psia for initial negative containment pressure ensures that the minimum containment pressure is consistent with the ECCS performance analysis ensuring core reflood under LOCA conditions, thus ensuring peak cladding temperature and cladding oxidation remain within limits. The 14.275 psia limit also ensures the containment pressure will not exceed the containment design negative pressure differential with respect to the annulus atmosphere in the event of an inadvertent actuation of the containment spray system.

Add INSERT 2a

3/4.6.1.5 AIR TEMPERATURE

→(DRN 04-1243, Ch. 38; EC-7193, Am. 54)

The limitation on containment minimum average air temperature ensures that the ECCS is capable of maintaining a peak clad temperature (PCT) less than or equal to 2200°F under LOCA conditions. A lower containment average air temperature results in a lower post accident containment pressure, a lower reflood rate, and therefore a higher PCT. The containment minimum average air temperature limit is only applicable above 70% rated thermal power. At power levels of 70% or below and a containment minimum average air temperature of less than 95°F, ECCS is capable of maintaining the peak clad temperature (PCT) less than or equal to 2200°F under LOCA conditions. Core Operating Limits Report (COLR) requires that the linear heat rate be reduced by 0.2 kw/ft when the containment air temperature is less than 95°F but greater than or equal to 90°F.

←(DRN 04-1243, Ch. 38; EC-7193, Am. 54)

The limit of 120°F on high average containment temperature is consistent with the limiting containment pressure and temperature response analyses inputs and assumptions. The limits currently adopted by Waterford 3 are 269.3°F during LOCA conditions and 413.5°F during MSLB conditions.

→(DRN 02-1904; 04-1243, Ch. 38; EC-7193, Am. 54)

The 95°F minimum and 120°F maximum indicated values specified in the TS are the values used in the accident analysis.

←(DRN 02-1904; 04-1243, Ch. 38; EC-7193, Am. 54)

3/4.6.1.6 CONTAINMENT VESSEL STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment steel vessel will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the containment vessel will withstand the maximum pressure resulting from the design basis LOCA and main steam line break accident. A visual inspection in conjunction with Type A leakage test is sufficient to demonstrate this capability.

3/4.6.1.7 CONTAINMENT VENTILATION SYSTEM

→(DRN 05-131, Ch. 39)

The use of the containment purge valves is restricted to 90 hours per year in accordance with Standard Review Plan 6.2.4 for plants with the Safety Evaluation Report for the Construction License issued prior to July ~~1, 1975. The purge valves have been modified to limit the opening~~ to approximately 52° to ensure the valves will close during a LOCA or MSLB;and therefore, the SITE BOUNDARY doses are maintained within the guidelines of 10CFR 50.67. The purge valves, as modified, comply with all provisions of BTP CSB 6-4 except for the recommended size of the purge line for systems to be used during plant operation.

←(DRN 05-131, Ch. 39)

Leakage integrity tests with a maximum allowable leakage rate for purge supply and exhaust isolation valves will provide early indication of resilient material seal degradation and will allow the opportunity for repair before gross leakage failure develops. The 0.60 La leakage limit shall not be exceeded when the leakage rates determined by the leakage integrity tests of these valves are added to the previously determined total for all valves and penetrations subject to Type B and C tests.

Operability concerns for purge supply and exhaust isolation valves other than those addressed in Actions "a" and "b" of Specification 3.6.1.7 are addressed under Specification 3.6.3, "Containment Isolation Valves."

Add INSERT 2b

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 and 3/4.6.2.2 ~~CONTAINMENT SPRAY SYSTEM and CONTAINMENT COOLING SYSTEM~~

The OPERABILITY of the Containment Spray System and the Containment Cooling System ensures that containment depressurization and cooling capability will be available in the event of a LOCA or MSLB for any double-ended break of the largest reactor coolant pipe or main steam line. Under post-accident conditions these systems will maintain the containment pressure below 44 psig and temperatures below 269.3°F during LOCA conditions or 413.5°F during MSLB conditions. The systems also reduce the containment pressure by a factor of 2 from its post-accident peak within 24 hours, resulting in lower containment leakage rates and lower offsite dose rates.

→(DRN 05-131, Ch. 39)

The Containment Spray System (CSS) also provides a mechanism for removing iodine from the containment atmosphere under post-LOCA conditions to maintain doses ~~in accordance~~ with 10 CFR 50.67 limits as described in Section 6.5.2 of the FSAR.

←(DRN 05-131, Ch. 39)

If LCO 3.6.2.1 requirements are not met due to the condition described in ACTION (a), then the inoperable CSS train components must be returned to OPERABLE status within seven (7) days of discovery. This seven (7) day allowed outage time is based on the findings of deterministic and probabilistic analysis, CE NPSD-1045, "Modifications To The Containment Spray System, and Low Pressure Safety Injection System Technical Specifications". Seven (7) days is a reasonable amount of time to perform many corrective and preventative maintenance items on the affected CSS train. CE NPSD-1045 concluded that the overall risk impact of the seven (7) day allowed outage time was either risk-beneficial or risk-neutral.

3/4.6.2.1 and 3/4.6.2.2 CONTAINMENT SPRAY SYSTEM and CONTAINMENT COOLING SYSTEM (con't)

Action (b) addresses the condition in which two CSS trains are inoperable and requires restoration of at least one spray system to OPERABLE status within 1 hour or the plant to be placed in HOT STANDBY in 6 hours and COLD SHUTDOWN within the following 30 hours. (COLD SHUTDOWN is the acceptable end state.)

In MODE 4 when shutdown cooling is placed in operation, the Containment Spray System is realigned in order to allow isolation of the spray headers. This is necessary to avoid a single failure of the spray header isolation valve causing Reactor Coolant System depressurization and inadvertent spraying of the containment. To allow for this realignment, the Containment Spray System may be taken out-of-service when RCS pressure is ≤ 400 psia. At this reduced RCS pressure and the reduced temperature associated with entry into MODE 4, the probability and consequences of a LOCA or MSLB are greatly reduced. The Containment Cooling System is required OPERABLE in MODE 4 and is available to provide depressurization and cooling capability.

The Containment Cooling System consists of two redundant trains and is designed such that a single failure does not degrade the systems' ability to provide the required heat removal capability. A train of Containment Cooling consists of two fans (powered from the same safety bus) and their associated coolers (supplied from the same cooling water loop). An operable train of containment cooling consists of one of the two fans and its associated cooler. One Containment Cooling train, consisting of one fan and its associated cooler, and a Containment Spray train has sufficient capacity to meet post accident heat removal requirements and maintain containment temperatures and pressures below the design values.

Operating each containment cooling train fan unit ~~for 15 minutes and verifying a cooling water flow rate of 625 gpm~~ ensures that all trains are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected and corrective action taken. Add INSERT 1a

>(LBDCR 13-006, Ch. 76)

Verifying the 625 gpm to each cooler ~~once per 31 days~~ with only one cooler aligned per train at a time provides a reliable representation of cooler operability. Measuring the flow through one cooler at a time provides more accurate characterization of each cooler condition than measuring the flow through two parallel coolers at the same time, the latter of which may mask flow degradation in a single cooler. Performing this portion of the surveillance with only one cooler aligned per train will avoid this potential misrepresentation of cooler condition related to blockage.

<(LBDCR 13-006, Ch. 76)

The ~~18 month~~ Surveillance Requirement verifies that each containment cooling fan actuates upon receipt of an actual or simulated SIAS actuation signal. ~~The 18 month frequency is based on engineering judgment and has been shown to be acceptable through operating experience.~~

Verifying a cooling water flow rate of 1200 gpm to each cooling unit provides assurance that the design flow rate assumed in the safety analyses will be achieved. The safety analyses assumed a cooling water flow rate of 1100 gpm. The 1200 gpm requirement accounts for measurement instrument uncertainties and potential flow degradation. Also considered in

3/4.6.2.1 and 3/4.6.2.2 CONTAINMENT SPRAY SYSTEM and CONTAINMENT COOLING SYSTEM (Continued)

Add INSERT 1a

selecting the ~~18 month~~ frequency were the known reliability of the Cooling Water System, the two train redundancy, and the low probability of a significant degradation of flow occurring between surveillances. The flow measurement ~~for the 18 month~~ test shall be done in a configuration equivalent to the accident lineup to ensure that in an accident situation adequate flow will be provided to the containment fan coolers for them to perform their safety function

Verifying that each valve actuates to the full open position provides further assurance that the valves will travel to their full open position on a Safety Injection Actuation Signal.

Add INSERT 2b

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment and is consistent with the requirements of GDC 54 through GDC 57 of Appendix A to 10 CFR Part 50. Containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

→(DRN 03-666, Ch. 25)

The asterisk "*" footnote associated with the LCO statement allows the opening of closed containment isolation valves on an intermittent basis under administrative controls. The valves within the scope of this footnote include locked or sealed closed containment isolation valves and deactivated automatic containment isolation valves secured in the isolation position. Acceptable administrative controls must include the following considerations: (1) stationing an operator, who is in constant communication with control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment.

←(DRN 03-666, Ch. 25)

"Containment Isolation Valves", previously Table 3.6-2, have been incorporated into the Technical Requirements Manual (TRM).

For penetrations with multiple flow paths, only the affected flow path(s) is required to be isolated when a containment isolation valve in that flow path is inoperable. The flow path may be isolated with the inoperable valve in accordance with the Action requirements, provided the leakage rate acceptance criteria, as applicable, is met and controls are in place to ensure the valve is closed. Also, the penetration is required to meed the requirements of GDC-54, and GDC-55 through GDC 57, as applicable, for all the unisolated flow paths.

→(EC-14681, Ch. 58)

The allowed outage time of 72 hours for isolating a penetration associated with a closed system is consistent with Technical Specification Task Force Traveler TSTF-30. Two barriers in series are provided for each penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analyses. One of these barriers may be a closed system, which is a line that

←(EC-14681, Ch. 58)

→(EC-14681, Ch. 58)

penetrates primary reactor containment and is neither part of the reactor coolant pressure boundary nor connected directly to the containment atmosphere. The affected penetration flow path must be verified to be isolated on a periodic basis. This periodic verification is necessary to assure leak tightness of containment and that containment penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative controls and the probability of their misalignment is low.

The 72 hour allowed outage time provides the necessary time to perform repairs on a failed containment isolation valve while relying on an intact closed system. This allowed outage time is acceptable considering the reliability of closed systems to act as a penetration boundary. Furthermore, 72 hours is typically provided for the loss of one train of redundancy (similar to inoperability of a containment isolation valve in a closed system penetration) throughout the Technical Specifications.

The Waterford 3 closed system penetrations that would be applicable to this action requirement are Blowdown (Containment Penetrations 5 & 6), the Component Cooling Water for Containment Fan Coolers (Containment Penetrations 15 - 22) and Emergency Feedwater, Main Feedwater (Containment Penetrations 3 & 4), and Main Steam (Containment Penetrations 1 & 2), and Secondary Sampling (Containment Penetrations 52 & 68). The closed systems associated with these penetrations are subject to a containment Type A leak rate test and are designed as safety class 2 and seismic category 1. These systems are systems in accordance with FSAR Section 6.2.4.1.2, The closed systems meet the criteria in SRP 6.2.4.

←(EC-14681, Ch. 58)

→(DRN 03-1541, Ch. 29)

For the Shutdown Cooling System suction line relief valves (SI-406A and SI-406B), TS 3/4.6.3 is only applicable in the close direction. The capability of these valves to lift at the specified setpoint is addressed by TS 3.4.8.3.

←(DRN 03-1541, Ch. 29)

Add INSERT 2a

→(DRN 04-971, Ch. 32)

←(DRN 04-971, Ch. 32)

3/4.6.5 VACUUM RELIEF VALVES

The vacuum relief valves protect the containment vessel against negative pressure (i.e., a lower pressure inside than outside). Excessive negative pressure inside containment can occur if there is an inadvertent actuation of Containment Spray System. Multiple equipment failures or human errors are necessary to have inadvertent actuation.

The containment pressure vessel contains two 100% vacuum relief lines installed in parallel that protect the containment from excessive external loading. The vacuum relief lines are 24 inch penetrations that connect the shield building annulus to the containment. Each vacuum relief line is isolated by a pneumatically operated butterfly valve in series with a check valve located on the containment side of the penetration.

3/4.6.5 VACUUM RELIEF VALVES (Continued)

Each butterfly valve is actuated by a separate pressure controller that senses the differential pressure between the containment and the annulus. Each butterfly valve is provided with an air accumulator that allows the valve to open following a loss of instrument air.

The combined pressure drop at rated flow through either vacuum relief line will not exceed the containment pressure vessel design external pressure differential of 0.65 psi.

Design of the vacuum relief lines involves calculating the effect of an inadvertent containment spray actuation that can reduce the atmospheric temperature (and hence pressure) inside containment (Ref. FSAR Chapter 6.2). Conservative assumptions are used for pertinent parameters in the analysis. The containment was designed for an external pressure load equivalent to 0.65 psi. The inadvertent actuation of the Containment Spray System was analyzed assuming one of the two vacuum relief lines failed to open. The resulting external pressure load on containment was less than the allowed design load.

The vacuum relief valves must also perform the containment isolation function in a containment high pressure event. For this reason, the system is designed to take the full containment positive design pressure and the containment design basis accident (DBA) environmental conditions (temperature, pressure, humidity, radiation, chemical attack, etc.) associated with the containment DBA.

The vacuum relief valves satisfy Criterion 3 of the 10 CFR 50.36(c)(2)(ii).

The LCO establishes the minimum equipment required to accomplish the vacuum relief function following the inadvertent actuation of the Containment Spray System. Two vacuum relief lines are required to be OPERABLE to ensure that at least one is available, assuming one or both valves in the other line fail to open.

In MODES 1, 2, 3, and 4, the containment cooling features, such as the Containment Spray System, are required to be OPERABLE to mitigate the effects of a DBA. Excessive negative pressure inside containment could occur whenever these systems are required to be OPERABLE due to inadvertent actuation of these systems. Therefore, the vacuum relief lines are required to be OPERABLE in MODES 1, 2, 3, and 4 to mitigate the effects of inadvertent actuation of the Containment Spray System.

In MODES 5 and 6, the probability and consequences of a DBA are reduced due to the pressure and temperature limitations of these MODES. The Containment Spray System is not required to be OPERABLE in MODES 5 and 6. Therefore, maintaining OPERABLE vacuum relief lines is not required in MODE 5 or 6.

3/4.6.6 SECONDARY CONTAINMENT

3/4.6.6.1 SHIELD BUILDING VENTILATION SYSTEM

→(DRN 05-131, Ch. 39)

The OPERABILITY of the shield building ventilation systems ensures that containment vessel leakage occurring during design basis accidents into the annulus will be filtered through the HEPA filters and charcoal adsorber trains prior to discharge to the atmosphere. This requirement is necessary to meet the assumptions used in the safety analyses and limit the site boundary radiation doses to within the limits of 10 CFR 50.67

←(DRN 05-131, Ch. 39)

Acceptable removal efficiency is shown by a methyl iodide penetration of less than 0.5% when tests are performed in accordance with ASTM D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," at a temperature of 30°C and a relative humidity of 70%. The penetration acceptance criterion is determined by the following equation:

$$\text{Allowable Penetration} = \frac{[100\% - \text{methyl iodide efficiency for charcoal credited in accident analysis}]}{\text{safety factor of 2}}$$

Applying a safety factor of 2 is acceptable because ASTM D3803-1989 is a more accurate and demanding test than older tests.

Add INSERT 2b

Operation of the system with the heaters on for at least 10 hours continuous over a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. Obtaining and analyzing charcoal samples after 720 hours of adsorber operation (since the last sample and analysis) ensures that the adsorber maintains the efficiency assumed in the safety analyses and is consistent with Regulatory Guide 1.52 and ASTM D3803-1989.

3/4.6.6.2 SHIELD BUILDING INTEGRITY

→(DRN 05-131, Ch. 39)

SHIELD BUILDING INTEGRITY ensures that the release of radioactive materials from the primary containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the safety analyses. This restriction, in conjunction with operation of the shield building ventilation system, will limit the site boundary radiation doses to within the limits of 10 CFR 50.67 during accident conditions.

←(DRN 05-131, Ch. 39)

3/4.7.1.2 EMERGENCY FEEDWATER SYSTEM (Continued)

Add INSERT 2a

Surveillance Requirements (Continued)

>(DRN 03-1807, Ch. 30)

b. The SR to verify pump OPERABILITY pursuant to the Inservice Testing Program ensures that the requirements of ASME Code Section XI are met and provides reasonable assurance that the pumps are capable of satisfying the design basis accident flow requirements. Because it is undesirable to introduce cold EFW into the steam generators while they are operating, testing is typically performed on recirculation flow. Such in-service tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance.

<(DRN 03-1807, Ch. 30)

This SR is modified to indicate the SR should be deferred until suitable test conditions have been established. This deferral is required because there is an insufficient steam pressure to perform post maintenance activities which may need to be completed prior to performing the required turbine-driven pump SR. This deferral allows the unit to transition from MODE 4 to MODE 3 prior to the performance of the SR and provides a 24 hour period once a steam generator pressure of 750 psig is reached to complete the required post maintenance activities and SR. If this SR is not completed within the 24 hour period or fails, then the appropriate ACTION must be entered. The twenty-five percent grace period allowed by TS 4.0.2 can not be applied to the 24 hour period.

>(DRN 05-42, Ch. 37)

c. The SR for actuation testing ensures that EFW can be delivered to the appropriate steam generator in the event of any accident or transient that generates EFAS and/or MSIS signals, by demonstrating that each automatic valve in the flow path actuates to its correct position and that the EFW pumps will start on an actual or simulated actuation signal. This Surveillance covers the automatic flow control valves, automatic isolation valves, and steam admission valves but is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. ~~The 18 month frequency is acceptable, based on the design reliability and operating experience of the equipment.~~ Add INSERT 2a

<(DRN 05-42, Ch. 37)

This SR is modified to indicate that the SR should be deferred until suitable test conditions have been established. This deferral is required because there is an insufficient steam pressure to perform post maintenance activities which may need to be completed prior to performing the required turbine-driven pump SR. This deferral allows the unit to transition from MODE 4 to MODE 3 prior to the performance of the SR and provides a 24 hour period once a steam generator pressure of 750 psig is reached to complete the required post maintenance activities and SR. If this SR is not completed within the 24 hour period or fails, then the appropriate ACTION must be entered. The twenty-five percent grace period allowed by TS 4.0.2 can not be applied to the 24 hour period.

Add INSERT 2b

3/4.7.1.4 ACTIVITY

→(DRN 04-1243, Ch. 38; 05-131, Ch. 39)

The limitations on secondary system specific activity ensure that the resultant offsite radiation dose will be limited to a small fraction of 10 CFR 50.67 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 540 gallons per day primary to secondary tube leak in the steam generator of the affected steam line and a concurrent loss-of-offsite electrical power. These values are consistent with the assumptions used in the safety analyses.

←(DRN 04-1243, Ch. 38; 05-131, Ch. 39)

Add INSERT 2b

→(DRN 03-1737, Ch. 31)

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVE (MSIV)

The MSIVs isolate steam flow from the secondary side of the steam generators following a high energy line break. MSIV closure terminates flow from the unaffected (intact) steam generator.

One MSIV is located in each main steam line outside of, but close to, containment. The MSIVs are downstream from the main steam safety valves (MSSVs), atmospheric dump valves, and emergency feedwater pump turbine steam supplies to prevent their being isolated from the steam generators by MSIV closure. Closing the MSIVs isolates each steam generator from the other, and isolates the turbine, Steam Bypass System, and other auxiliary steam supplies from the steam generators.

The MSIVs close on a main steam isolation signal (MSIS) generated by either low steam generator pressure or high containment pressure. The MSIVs fail as is on loss of power to the actuator however; the operators for the MSIV are furnished with redundant hydraulic fluid dump valves powered by diverse power, to ensure that no single electrical failure will prevent valve closure. The MSIVs may also be actuated manually.

A description of the MSIVs is found in Final Safety Analysis Report (FSAR), Section 10.3.

The design basis of the MSIVs is established by the containment analysis for the large steam line break (SLB) inside containment, as discussed in FSAR, Section 6.2. It is also influenced by the accident analysis of the SLB events presented in FSAR, Section 15.1.3. The design precludes the blowdown of more than one steam generator, assuming a single active component failure (e.g., the failure of one MSIV to close on demand).

The OPERABILITY of the MSIVs 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 MSIVs satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

←(DRN 03-1737, Ch. 31)

→(DRN 03-1737, Ch. 31)

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVE (MSIV) (Continued)

→(DRN 04-1243, Ch. 38)

SR 4.7.1.5a verifies that the closure time of each MSIV is within its limit when tested pursuant to the Inservice Testing Program. A static test using 4.0 seconds demonstrates the ability of the MSIVs to close in less than or equal to the 8 seconds required closure time under design basis accident conditions. The 8 second required closure time includes a 1 second allowance for instrument response time.

This SR is normally performed during a refueling outage but may be performed upon returning the unit to operation following a refueling outage. The MSIVs should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. As the MSIVs are not tested at power, they are exempt from the ASME Code, Section XI (Inservice Inspection, Article IWV-3400), requirements during operation in MODES 1 and 2.

←(DRN 04-1243, Ch. 38)

The Frequency for this SR is in accordance with the Inservice Testing Program.

This test may be conducted in MODE 3, with the unit at operating temperature and pressure.

Add INSERT 1a

SR 4.7.1.5b verifies that each MSIV can close on an actual or simulated actuation signal. This Surveillance may be performed upon returning the plant to operation following a refueling outage. The Frequency of MSIV testing is ~~every 18 months. The 18 month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance. Therefore, this Frequency is acceptable from a reliability standpoint.~~

Add INSERT 2a

←(DRN 03-1737, Ch. 31)

3/4.7.1.6 MAIN FEEDWATER ISOLATION VALVES

The Main Feedwater Isolation Valves (MFIVs) isolate main feedwater (MFW) flow to the secondary side of the steam generators following a high energy line break (HELB). Closure of the MFIVs terminates flow to both steam generators, mitigating the consequences for feedwater line breaks (FWLBs). Closure of the MFIVs effectively terminates the addition of main feedwater to an affected steam generator, limiting the mass and energy release for Main Steam Line Breaks (MSLBs) or FWLBs inside containment, and reducing the cooldown effects for MSLBs.

The MFIVs isolate the non-safety related feedwater supply from the safety related portion of the system. In the event of a secondary side pipe rupture inside containment, the valves limit the quantity of high energy fluid that enters containment through the break, and provide a pressure boundary for the controlled addition of Emergency Feedwater (EFW) to the intact steam generator.

→(DRN 04-1243, Ch. 38)

One MFIV is located on each MFW line, outside, but close to, containment. The MFIVs are located upstream of the EFW injection point so that EFW may be supplied to a steam generator following MFIV closure.

←(DRN 04-1243, Ch. 38)

3/4.7.1.6 MAIN FEEDWATER ISOLATION VALVES (con't)

The TS is annotated with a 3.0.4 exemption, allowing entry into the applicable MODES to be made with an inoperable MFIV closed or isolated as required by the ACTIONS. The ACTIONS allow separate condition entry for each valve by using "With one or more MFIV...". This prevents immediate entry into TS 3.0.3 if both MFIVs are declared inoperable.

→(DRN 03-1807, Ch. 30; 04-1243, Ch. 38; 05-1650)

The Surveillance Requirement to verify isolation in less than or equal to 6 seconds is based on the time assumed in the accident and containment analyses. The design basis correlates a static test utilizing one accumulator to demonstrate the ability of the MFIVs to close in less than or equal to 6 seconds under design basis accident conditions with two accumulators. The static stroke time test that utilizes one accumulator is allowed to exceed the 6 second Surveillance Requirement since both accumulators are credited in the design basis Accidents in order to isolate within the 6 second Surveillance Requirement. The 6 second required closure time includes a 1 second allowance for instrument response time.

← (DRN 05-1650)

The MFIVs should not be tested at power since even a partial stroke exercise in Add INSERT 1a the risk of a valve closure with the plant generating power and would create added cyclic stresses. The Surveillance to verify each MFIV can close on an actual or simulated actuation signal is normally performed ~~when the plant is returning to operation following a refueling outage~~. Verification of valve closure on an actuation signal is not required until entry into Mode 3 consistent with TS 3.3.2. ~~The 18 month frequency is based on the refueling cycle~~. Verification of closure time is performed per the Inservice Testing Program. This frequency is acceptable from a reliability standpoint and is in accordance with the Inservice Testing Program.

→(DRN 03-1807, Ch. 30)

←(DRN 02-1684, Ch. 15; 04-1243, Ch. 38)

Add INSERT 2a

Credited Non-Safety Related Support Systems for MFIV Operability

Reactor Trip Override (RTO) and the Auxiliary Feedwater (AFW) Pump High Discharge Pressure Trip (HDPT) are credited for rapid closure of the Main Feedwater Isolation Valves (MFIVs) during main steam and feedwater line breaks. Crediting of these non-safety features was submitted to the NRC as a USQ and approved. (Reference letter dated September 5, 2000 from the NRC to Charles M. Dugger, "Waterford 3 Steam Electric Station, Unit 3 - Issuance of Amendment RE: Addition of Main Feedwater Ioslation Valves to Technical Specifications and Request for NRC Staff Review of an Unreviewed Safety Question.")

The feature of RTO that is credited for MFIV closure is the rapid SGFP speed reduction upon reactor trip initiation. This feature reduces the differential pressure across the valve disc at closure, thus allowing rapid valve closure. Therefore, the RTO feature must be able to decrease SGFP speed to minimum on a reactor trip during SGFP operation for OPERABILITY of the MFIVs.

The AFW Pump HDPT reduces the differential pressure across the valve disc at closure during AFW Pump operation. Therefore, this feature must be functional during AFW Pump operation for OPERABILITY of the MFIVs. When the AFW pump is not running, this trip is not required.

In MODES 1, 2, 3, and 4, the MFIVs are required to be OPERABLE. Because the MFIVs are required to be OPERABLE in MODES 1, 2, 3, and 4, RTO must be able to decrease SGFP

←(DRN 02-1684, Ch. 15)

3.4.7.1.7 ATMOSPHERIC DUMP VALVES (Continued)

In this condition, the SBLOCA can not be mitigated by one high-pressure safety injection train alone. Therefore, one of the ADVs must be restored to OPERABLE status within 1 hour or power must be reduced to less than or equal to 70% RATED THERMAL POWER within the next six hours. The LCO will no longer apply once the unit has been at less than or equal to 70% RATED THERMAL POWER for greater than six hours.

c. This ACTION address the condition when one ADV is inoperable for reasons other than those addressed in ACTIONs (a) and (b) above. This condition includes:
   - The inability to operate the ADV manually via the handwheel, or
   - The inability to operate the ADV manually via the controller in the control room, or
   - An inoperable nitrogen accumulator.

   A 72 hour allowed outage time is provided to restore the ADV to an OPERABLE status. The 72 hour allowed outage time takes into account the capability afforded by the remaining OPERABLE ADV, a nonsafety grade backup in the Steam Bypass System and MSSVs, the closed system inside containment, and the backup isolation capability of the block valve.

   If the ADV can not be restored to an OPERABLE status within the allowed outage time, the unit must be placed in a status in which the LCO does not apply. To achieve this status, the unit must be placed in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The following conditions are not addressed by the ACTION statements:
- The automatic actuation channel for one ADV is inoperable and the other ADV is inoperable for other reasons.
- Both ADVs are inoperable for reasons other than the automatic actuation channels.

For these conditions, Specification 3.0.3 is entered.

Surveillance Requirements

a. To mitigate the SBLOCA event, the ADVs must automatically open at a pressure of less than or equal to 1040 psia (992 psig indicated). This CHANNEL CHECK provides assurance that the behavior of the steam line pressure input to the automatic actuation channel is reasonable for the existing plant conditions. This steam line pressure input is available on the plant monitoring computer or from appropriate maintenance and test equipment. This Surveillance Requirement (SR) need not be performed when the ADV automatic actuation channels are not required to be OPERABLE per the LCO footnote.

←(DRN 04-1243, Ch. 38)

Add INSERT 2a

3.4.7.1.7 ATMOSPHERIC DUMP VALVES (ADVs) (Continued)

b. To mitigate the SBLOCA event, the ADVs must automatically open at a pressure of less than or equal to 1040 psia (992 psig indicated). This Surveillance Requirement (SR) ensures that the ADV controllers are in automatic and set at an appropriate setpoint that is bounded by the SBLOCA safety analysis. The setpoint must be verified using the plant monitoring computer or appropriate maintenance and test equipment. This SR need not be performed when the ADV automatic actuation channels are not required to be OPERABLE per the LCO footnote. Add INSERT 2a

c. To perform a controlled cooldown of the reactor coolant system, the ADVs must be able to be opened and throttled through their full range. Additionally, the ADV must be capable of being closed to fulfill its secondary function of containment isolation. This SR ensures the ADVs are tested through a full control cycle. The test interval is in accordance with the Inservice Testing Program.

d. The SR to calibrate the ADV automatic actuation channels ensures that the system will generate an actuation signal at 1040 psia (992 psig indicated) as assumed for the SBLOCA. The calibration should include the plant monitoring computer points used to set the setpoint.

e. The SR for actuation testing ensures that the ADV will automatically open on a high steam pressure signal, with a response time of less than or equal to 60 seconds, as assumed for the SBLOCA. Credit may be taken for an actual or simulated actuation signal.

←(DRN 04-1243, Ch. 38)

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator secondary pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitation to 115°F and 210 psig is based on a steam generator RTNDT of 40°F and is sufficient to prevent brittle fracture. Below this temperature of 115°F the system pressure must be limited to a maximum c Add INSERT 2b ndary hydrostatic test pressure of 1375 psia (corrected for instrument error). nerator temperature drop below 115°F an engineering evaluation of the effects of the overpressurization is required. However, to reduce the potential for brittle failure the steam generator temperature may be increased to a limit of 200°F while performing the evaluation. The limitations on the primary side of the steam generator are bounded by the restrictions on the reactor coolant system in Specification 3.4.8.1.

3/4.7.3 COMPONENT COOLING WATER AND AUXILIARY COMPONENT COOLING WATER SYSTEMS

The OPERABILITY of the component cooling water system and its corresponding auxiliary component cooling water system ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of these systems, assuming a single failure, is consistent with the assumptions used in the safety analyses.

3/4.7.4 ULTIMATE HEAT SINK (Continued)

>(LBDCR-12-001, Ch. 73)

with fan requirements have been rounded in the conservative direction and lowered at least one full degree. Failure to meet the OPERABILITY requirements of Table 3.7-3 requires entry into the applicable action. Because temperature is subject to change during the day, ACTION d requires periodic temperature readings to verify compliance with Table 3.7-3 when any cooling tower fan is inoperable.

<(LBDCR-12-001, Ch. 73)

>(DRN 04-1243, Ch. 38)

The limitations on minimum water level and maximum temperature are based on providing a 30-day cooling water supply to essential equipment without exceeding their design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants," March 1974.

<(DRN 04-1243, Ch. 38)

>(EC-38632, Ch. 72)

Surveillance Requirements

b. This SR demonstrates OPERABILITY of the wet and dry tower fans corresponding to the accident configuration, which for the dry tower fans is in fast speed.

<(EC-38632, Ch. 72)

Add INSERT 2b

→(EC-15550, Ch. 59)

3/4.7.6.1 CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM (CREAFS) (Continued)

Surveillance Requirements

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 licensing basis analyses of DBA consequences is no more than 5 rem TEDE and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is not greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Action b must be entered. Action b.3 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. 1) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 2). These compensatory measures may also be used as mitigating actions as required by Action b.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 3). 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.

Add INSERT 2b

References

1. Regulatory Guide 1.1.96
2. NEI 99-03, "Control Room Habitability Assessment," June 2001.
3. 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).

3/4.7.6.2 [NOT USED]

←(EC-15550, Ch. 59)

3/4.7.6.3 and 3/4.7.6.4 CONTROL ROOM AIR TEMPERATURE

Maintaining the control room air temperature less than or equal to 80°F ensures that (1) the ambient air temperature does not exceed the allowable air temperature for continuous duty rating for the equipment and instrumentation in the control room, and (2) the control room will remain habitable for operations personnel during plant operation.

The Air Conditioning System is designed to cool the outlet air to approximately 55°F. Then, non-safety-related near-room heaters add enough heat to the air stream to keep the rooms between 70 and 75°F. Although 70 to 75°F is the normal control band, it would be too restrictive as an LCO. Control Room equipment was specified for a more general temperature range to 45 to 120°F. A provision for the CPC microcomputers, which might be more sensitive to heat, is not required here. Since maximum outside air make-up flow in the normal ventilation mode comprises less than ten percent of the air flow from an AH-12 unit, outside air temperature has little affect on the AH-12s cooling coil heat load. Therefore, the ability of an AH-12 unit to maintain control room temperature in the normal mode gives adequate assurance of its capability for emergency situations.

>(EC-38571, Ch. 71)

The ACTION to suspend all operations involving load movement with or over irradiated fuel assemblies shall not preclude completion of movement to a safe conservative position.

The fuel handling accident (UFSAR Section 15.7.3.4) analysis assumes protection against load movements with or over irradiated fuel assemblies that could cause fuel assembly damage. Examples of load movements include movement of new fuel assemblies, irradiated fuel assemblies, and the dummy fuel assembly. The load movements do not include the movement over assemblies in a transfer cask using a single-failure-proof handling system. The load movements do not include the movement of the spent fuel machine or refuel machine without loads attached. It also does not include load movements in containment when the reactor vessel head or Upper Guide Structure is still installed. Load movements also exclude suspended loads weighing less than 1000 lbm (e.g. Westinghouse analysis CN-NFPE-09-57 describes no fuel failure for loads weighing less than 1000 lbm based upon the 2000 lbm analysis for drops distributed over two assemblies).

<(EC-38571, Ch. 71)

>(EC-15550, Ch. 59)

3/4.7.6.5 [NOT USED]

Add INSERT 2b

<(EC-15550, Ch. 59)

~~3/4.7.7 CONTROLLED VENTILATION AREA SYSTEM (Continued)~~

Acceptable removal efficiency is shown by a methyl iodide penetration of less than 0.5% when tests are performed in accordance with ASTM D3803-1989, "Standard test Method for Nuclear-Grade Activated Carbon," at a temperature of 30°C and a relative humidity of 70%. The penetration acceptance criterion is determined by the following equation:

$$\text{Allowable Penetration} = \frac{[100\% - \text{methyl iodide efficiency for charcoal credited in accident analysis}]}{\text{safety factor of 2}}$$

Add INSERT 1a

Applying a safety factor of 2 is acceptable because ASTM D3803-1989 is a more accurate and demanding test than older tests.

Operation of the system with the heaters on for at least 10 hours continuous ~~over a 31-day period~~ is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. Obtaining and analyzing charcoal samples after 720 hours of adsorber operation (since the last sample and analysis) ensures that the adsorber maintains the efficiency assumed in the safety analyses and is consistent with Regulatory Guide 1.52 and ASTM D3803-1989.

Add INSERT 2b

PLANT SYSTEMS

BASES

3/4.7.12 ESSENTIAL SERVICES CHILLED WATER SYSTEM (Continued)

system to operate in such a manner that ≤ 42°F and/or ≥ 500 gpm may not be directly met, yet CHW System Operability is maintained. During normal operation, when there is insufficient heat load, the following conditions may apply, but the CHW System is still OPERABLE.

(1) The chilled water operational flow control valves for Control Room Ventilation Unit AH-12 and Switchgear Ventilation Units AH-25 and AH-30, control the flow rate through the cooling coils based on discharge air temperature. If there is insufficient load, the flow control valves may be at a minimum, thus, reducing the total chilled water train flow rate to <500 gpm.

2) The CHW System chillers are equipped with a Hot Gas Bypass Valve which opens when chilled water inlet temperature is reduced significantly. This indicates the available heat load on the operating chiller is reduced to a point it will begin to auto recycle if the valve is not opened. This valve diverts a portion of hot compressor discharge gas directly to the bottom of the evaporator instead of sending it to the condenser. This diversion artificially increases the evaporators refrigerant pressure and temperature which in turns increases the chilled water outlet temperature. The increased chilled water outlet temperature eventually increases the chilled water inlet temperature which then closes the Hot Gas Bypass Valve. This operation allows the chiller to stay running at minimum heat loads, down to approximately 10% rated capacity, but allows the chilled water outlet temperature to cycle. Due to this cycling, the peak chilled water outlet temperature may be >42°F. During DBA conditions, air handling unit cooling coil heat loads would be increased which results in the Hot Gas Bypass Valve going to the closed position.

→(DRN 03-1046, Ch. 28)

3) If the Hot Gas Bypass Valve does not open (i.e., is not operational), as described in Item 2, the chiller will auto recycle based on low chilled water outlet temperature. The chiller will automatically secure at a preset low temperature, then automatically restart when the chilled water temperature increases past the reset deadband of the switch. The reset deadband for the switch allows the chilled water outlet temperature to be >42°F. As chiller loading is increased (as would occur during a DBA) the chiller will load sufficiently to reduce chilled water outlet temperature ≤42°F.

Add INSERT 1a

←(DRN 03-1046, Ch. 28)

The ~~31 day~~ Surveillance Requirement (SR) to verify the chilled water outlet temperature is ≤42°F at a flow rate of ≥500 gpm ensures the assumptions of the DBA are preserved. This SR will be performed with sufficient heat load to ensure the Hot Gas Bypass Valve is closed and the chiller is not auto recycling on low load. This may require shifting loads from one chilled train to one being tested. This requirement is reflective of an actual post DBA condition, and ensures the chiller will control the chilled water outlet temperature within limits when sufficient heat load is applied.

Add INSERT 2b

The NRC evaluation section in Safety Evaluation of Amendment No. 157, for the EDG FOST not having 10% margin in fuel oil inventory, credited acceptability of the design based upon Waterford 3 having EDG Fuel Oil Storage and Transfer Systems cross connecting capabilities. With the ability to cross-tie the two EDG Fuel Oil Storage and Transfer Systems, one EDG will be able to operate continuously for a period of well over 7 days.

Per Safety Evaluation in Amendment 180, TS SR 4.8.1.1.2e verifies that each fuel oil transfer pump transfers fuel to its associated diesel oil feed tank by taking suction from the opposite train FOST via the installed cross connect. This test is performed by aligning the "A" fuel oil transfer pump suction to the "B" FOST, or the "B" fuel oil transfer pump suction to the "A" FOST. Only one train is tested at a time, and that train is considered inoperable during the test. The train that is being tested is considered inoperable. The test alignment requires the normal fuel transfer suction valve to be closed and two cross-connect valves to the opposite train to be opened. When an increase in volume is observed in the associated train's diesel oil feed tank, the fuel oil transfer pump is secured and valves realigned.

←(LBDCR 13-017, Ch. 80)

Add INSERT 2b

→(EC-10752, Ch. 56)

LCO 3.8.1.3

ACTION a

→(EC-15945, Ch. 61)

This ACTION ensures that each diesel generator fuel oil storage tank (FOST) contains fuel oil of a sufficient volume to operate each diesel generator for a period of 7 days. An administrative limit of greater than 40,033 gallons assures at least 39,300 usable gallons are stored in the tank accounting for volumetric shrink and instrumentation uncertainty. This useable volume is sufficient to operate the diesel generator for 7 days based on the time-dependent loads of the diesel generator following a loss of offsite power and a design bases accident and includes the capacity to power the engineered safety features in conformance with Regulatory

←(EC-10725, Ch. 56; EC-15945, Ch. 61)

3/4.8.1, 3/4.8.2, and 3/4.8.3 A.C. SOURCES, AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

→(EC-10752, Ch. 56)

SR 4.8.1.3.1

Add INSERT 1a

This SR provides verification that there is an adequate inventory of fuel oil in the storage tanks to support each EDG's operation for 7 ~~days at~~ full load. The 7 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location. The ~~31 day~~ Frequency ~~is~~ adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

Add INSERT 2a

SR 4.8.1.3.2

SR 4.8.1.3.2 provides a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion. If results from the tests are within acceptable limits, the fuel oil may be added to the storage tanks without concern for contaminating the entire volume of fuel oil in the storage tanks. The tests are to be conducted prior to adding the new fuel to the storage tanks, but in no case is the time between receipt of the new fuel and conducting the tests to exceed 31 days. The tests, limits and applicable ASTM Standards are as follows:

→(EC-15945, Ch. 61)

a. Sample the new fuel oil in accordance with ASTM D4057-06.

←(EC-15945, Ch. 61)

b. Verify in accordance with the tests specified in ASTM D975-7b that the sample has a kinematic viscosity at 40°C of ≥ 1.9 centistokes and ≤ 4.1 centistokes, and a flash point ≥125°F,

c. Verify in accordance with ASTM D1298 or ASTM D4052 that the sample has an absolute specific gravity of 60/60°F of ≥0.85 and ≤0.885 or an API gravity at 60°F of ≥28.4° and ≤35° and

d. Verify that the new fuel oil has a clear and bright appearance with proper color when tested in accordance with ASTM D4176-04 or water and sediment content within limits when tested in accordance with ASTM D2709-96.

→(EC-15945, Ch. 61)

Failure to meet any of the above limits is cause for rejecting the new fuel oil, but does not represent a failure to meet the LCO since the fuel oil is not added to the storage tanks.

←(EC-15945, Ch. 61)

Within 31 days following the initial new fuel oil sample, the fuel oil is analyzed to establish that the other properties specified in Table 1 of ASTM D975-7b are met for Grade 2-D

←(EC-10725, Ch. 56)

ELECTRICAL POWER SYSTEMS

BASES

A.C. SOURCES, D.C. SOURCES, AND ONSITE POWER DISTRIBUTION SYSTEMS ~~(Continued)~~

→(EC 47119, Ch 79)

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are consistent with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," Revision 4, March 2007, and 1.137, "Fuel Oil Systems for Standby Diesel Generators," Revision 1, October 1979. Other provisions are derived from Generic Letter 93-05 "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation" 94-01 "Removal of Accelerated Testing and Special Reporting Requirements for Emergency Diesel Generators," and NUREG 1432 Standard Technical Specifications Combustion Engineering Plants.

←(EC 47119, Ch 79)

The minimum voltage and frequency stated in the Surveillance Requirement are those necessary to ensure the diesel generator can accept the Design Basis Accident loading while maintaining acceptable voltage and frequency levels. Stable operation at the nominal voltage and frequency values is also essential to establishing diesel generator OPERABILITY, but a time constraint is not imposed. This is because a typical diesel generator will experience a period of voltage and frequency oscillations prior to reaching steady state operation if these oscillations are not dampened out by load application. This period may extend beyond the 10 second acceptance criteria and could be a cause for failing the Surveillance Requirement. In lieu of a time constraint in the Surveillance Requirement, the actual time to reach steady state operation is monitored and trended. This is to [Add INSERT 2b] voltage regulator or governor degradation which could cause a diesel generator ... able. The 10 seconds in the Surveillance Requirement is met when the diesel generator first reaches the specified voltage and frequency, at which time the output breaker would close if an automatic actuation had occurred.

→(DRN 02-0607)
←(DRN 02-0607)

The maximum voltage limit in Surveillance test 4.8.1.1.2.e.2 was increased to 5023 volts in response to NRC Information Notice 91-13; Inadequate Testing of Emergency Diesel Generators. A maximum voltage limit is provided to ensure that components electrically connected to the diesel generator are not damaged as a result of the momentary voltage excursion experienced during this test.

Add INSERT 2a

The Surveillance Requirement 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."

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

A.C. SOURCES, D.C. SOURCES, AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

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.

Add INSERT 2b

The Onsite Power System includes three 4.16 kV ESF buses (3A3-S, 3B3-S, and 3AB3-2). Power for safety related loads is normally supplied by the non-safety related 4.16 kV buses (3A2 and 3B2) of the Offsite Power System. Should offsite power from either of these be lost, the Onsite Power System will receive power automatically from the appropriate diesel generator. Non-safety related loads will be automatically disconnected from the safety Onsite Power System. Each ESF bus (3A3-S or 3B3-S) is redundant to the other; each can supply sufficient power to its safety related loads to enable safe shutdown, or to mitigate the consequences of a design basis accident. The third bus, 3AB3-S, may be connected to either 3A3-S or 3B3-S, but never to both. Therefore 3AB3-S is not considered as a third, separate source of ESF power. The three ESF buses and their loads are tested as specified in Surveillance Requirements 4.8.1.1.2.e.3 and 4.8.1.1.2.e.5.

Add INSERT 1a

Surveillance requirement 4.8.1.1.2.e.1 requires the verification ~~at least once per 18 months~~ of the diesel generator's ability to reject a load of greater than or equal to 498 Kw while specific voltage and frequency constraints are maintained. The intent of this Surveillance requirement is to require the diesel generator to reject the largest single load. The largest single load on the diesel generator is the Essential Chiller which requires 430 Kw under tornado/missile conditions. The difference between the specified 498 Kw load in the Surveillance requirement and the 430 Kw required by the actual largest single load is a margin of conservatism. A method of rejecting a load greater than or equal to 498 Kw utilizing the wet and dry cooling tower fans has been developed and will satisfy the Surveillance requirement.

Add INSERT 2a

The loading range for the diesel generators (4000-4400 Kw) as specified in surveillance requirements is equal to approximately 90 to 100 percent of its continuous rating. This provides for a range to conduct testing without inadvertently overloading of the diesel generators. Inadvertent overloading creates unnecessary wear and mechanical stress that may adversely affect the reliability and longevity of the diesel generators.

A.C. SOURCES, D.C. SOURCES, AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

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.

Add INSERT 2b

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The Surveillance Requirements applicable to lower voltage circuit breakers and fuses provides assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturers brand of circuit breaker and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of circuit breakers and/or fuses it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker or fuses for surveillance purposes.

The OPERABILITY of the motor-operated valves thermal overload protection and/or bypass devices ensures that these devices will not prevent safety related valves from performing their function. The Surveillance Requirements for demonstrating the OPERABILITY of these devices are in accordance with Regulatory Guide I.I06, "Thermal Overload Protection for Electric Motors on Motor Operated Valves," Revision 1, March 1977.

"Containment Penetration Conductor Overcurrent Protection Devices" and "Motor-Operated Valves Thermal Overload Protection and/or Bypass Devices", previously Tables 3.8-1 and 3.8-2, have been incorporated into the Technical Requirements Manual (TRM).

AMENDMENT NO.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: (1) the reactor will remain subcritical during CORE ALTERATIONS, and (2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the safety analyses. The K_{eff} value specified in the COLR includes a 1% delta k/k conservative allowance for uncertainties. Similarly, the boron concentration value specified in the COLR also includes a conservative uncertainty allowance of 50 ppm boron.

>(DRN 03-375, Ch. 19)

If the boron concentration of any coolant volume in the RCS, the refueling canal, or the refueling cavity is less than its limit, all operations involving CORE ALTERATIONS or positive reactivity additions must be suspended immediately. Operations that individually add limited positive reactivity (e.g., temperature fluctuations from inventory addition or temperature control fluctuations), but when combined with all other operations affecting core reactivity (e.g., intentional boration) result in overall net negative reactivity addition, are not precluded by this action. Suspension of CORE ALTERATIONS or positive reactivity additions shall not preclude moving a component to a safe position.

<(DRN 03-375, Ch. 19)

Add INSERT 2a

3/4.9.2 INSTRUMENTATION

Add INSERT 2b

The OPERABILITY of the source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor pressure vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the safety analyses.

>(EC-38571, Ch. 71)

The fuel handling accident (UFSAR Section 15.7.3.4) analysis assumes protection against load movements with or over irradiated fuel assemblies that could cause fuel assembly damage. Examples of load movements include movement of new fuel assemblies, irradiated fuel assemblies, and the dummy fuel assembly. The load movements do not include the movement over assemblies in a transfer cask using a single-failure-proof handling system. The load movements do not include the movement of the spent fuel machine or refuel machine without loads attached. It also does not include load movements in containment when the reactor vessel head or Upper Guide Structure is still installed. Load movements also exclude suspended loads weighing less than 1000 lbm (e.g. Westinghouse analysis CN-NFPE-09-57 describes no fuel failure for loads weighing less than 1000 lbm based upon the 2000 lbm analysis for drops distributed over two assemblies).

<(EC-38571, Ch. 71)

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS (Continued)
>(DRN 03-178, Ch. 21; EC-28875, Ch. 69)
instrumentation channels (Note that Technical Specifications 3/4.3.3, Radiation Monitoring is also applicable). The containment purge lines are automatically closed upon a containment purge isolation signal (CPIS) if the fuel handling accident releases activity above prescribed levels. Closure of at least one of the containment purge isolation valves is sufficient to provide closure of the penetration.

Administrative controls shall ensure that appropriate personnel are aware that when the equipment door, both personnel airlock doors, and/or containment penetrations are open, a specific individual(s) is designated and available to close the equipment door, an airlock door and the penetrations as part of a required evacuation of containment, and any obstruction(s) (e.g., cables and hoses) that could prevent closure of an airlock door and the equipment door be capable of being quickly removed.
<(DRN 03-178, Ch. 21; EC-28875, Ch. 69)

Add INSERT 2b

>(LBDCR 13-003, Ch. 74)

3/4.9.5 DELETED

<(LBDCR 13-003, Ch. 74)

3/4.9.6 REFUELING MACHINE
>(EC-17724, Ch. 62)
The OPERABILITY requirements for the refueling machine ensure that: (1) the refueling machine will be used for movement of CEAs and fuel assemblies, (2) each hoist has sufficient load capacity to lift a CEA or fuel assembly, and (3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations. The Technical Specification Actions 'a.' and 'b.' statements allow the movement of a fuel assembly or CEA to safe condition using administrative controls in the event of a refueling machine failure.
<(EC-17724, Ch. 62)

3/4.9.7 CRANE TRAVEL - FUEL HANDLING BUILDING
>(EC-32267, Ch. 70; EC-38571, Ch. 71)
The fuel handling accident (UFSAR Section 15.7.3.4) analysis assumes protection against load movements with or over irradiated fuel assemblies that could cause fuel assembly damage. Examples of load movements include movement of new fuel assemblies, irradiated fuel assemblies, and the dummy fuel assembly. The load movements do not include the movement over assemblies in a transfer cask using a single-failure-proof handling system. The load movements do not include the movement of the spent fuel machine or refuel machine without loads attached. It also does not include load movements in containment when the reactor vessel head or Upper Guide Structure is still installed. Load movements also exclude suspended loads weighing less than 1000 lbm (e.g. Westinghouse analysis CN-NFPE-09-57 describes no fuel failure for loads weighing less than 1000 lbm based upon the 2000 lbm analysis for drops distributed over two assemblies). Movements of loads using a single failure proof handling system, consisting of a crane that has been upgraded to meeting the single-failure-proof criteria of NUREG 0554 and NUREG 0612, and lifting devices that meet the requirements of ANSI N14.6 or ASME B30.9, do not require the assumption of a dropped load, and activity releases assumed in the safety analysis are not affected.
<(EC-32267, Ch. 70; EC-38571, Ch. 71)

3/4.9.8 SHUTDOWN COOLING AND COOLANT CIRCULATION

>(DRN 03-375, Ch. 19)

The requirement that at least one shutdown cooling train be in operation ensures that (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during the REFUELING MODE, and (2) sufficient coolant circulation is maintained through the reactor core to minimize the effects of a boron dilution incident and prevent boron stratification. If SDC loop requirements are not met, there will be no forced circulation to provide mixing to establish uniform boron concentrations. Suspending positive reactivity additions that could result in failure to meet the minimum boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that which would be required in the RCS for minimum refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operations.

<(DRN 03-375, Ch. 19)

The requirement to have two shutdown cooling trains OPERABLE when there is less than 23 feet of water above the top of the fuel seated Add INSERT 2b essure vessel ensures that a single failure of the operating shutdown cooling train will not result in a complete loss of decay heat removal capability. When there is no irradiated fuel in the reactor pressure vessel, this is not a consideration and only one shutdown cooling train is required to be OPERABLE. With the reactor vessel head removed and 23 feet of water above the top of the fuel seated in the reactor pressure vessel, a large heat sink is available for core cooling, thus in the event of a failure of the operating shutdown cooling train, adequate time is provided to initiate emergency procedures to cool the core.

>(DRN 03-233, Ch. 22; EC-28875, Am. 69)

<(DRN 03-233, Ch. 22; EC-28875, Am. 69)

3/4.9.10 and 3/4.9.11 WATER LEVEL - REACTOR VESSEL and SPENT FUEL POOL

>(DRN 05-131, Ch. 39)

The restrictions on minimum water level ensure that sufficient water depth is available such that the iodine released as a result of a rupture of an irradiated fuel assembly is reduced by a factor of at least 200. Gap fractions are assumed in accordance with Regulatory Guide 1.183 guidance. The minimum water depth is consistent with assumptions of the safety analysis.

<(DRN 05-131, Ch. 39)

>(EC-18742, Ch. 65)

3/4.9.12 and 3/4.9.13 SPENT FUEL POOL BORON CONCENTRATION and SPENT FUEL STORAGE

TS 5.6, "FUEL STORAGE," reflects the results of the criticality analysis, crediting soluble boron and allowing more flexibility in storing the more reactive Next Generation Fuel (NGF) assemblies in the spent fuel storage racks. The Waterford 3 SFP criticality analysis used a

<(EC-18742, Ch. 65)

3/4.9.12 and 3/4.9.13 SPENT FUEL POOL BORON CONCENTRATION and SPENT FUEL STORAGE (Continued)

design acceptance criteria of effective (neutron) multiplication factor (k_{eff}) no greater than 0.995, if flooded with unborated water, and k_{eff} no greater than 0.945, if flooded with borated water. This provides an additional 0.005 Δk_{eff} analytical margin to the regulatory requirement. This approach provides sufficient margin to offset minor non-conservatisms to provide reasonable assurance that the regulatory requirements are met. Each storage configuration has a geometric arrangement which must be maintained so that the SFP criticality analysis remains valid.

Add INSERT 1a

The spent fuel pool (SFP) criticality analysis credits 524 parts per million (ppm) of soluble boron to maintain k_{eff} less than 0.95 in the SFP during normal conditions, and 870 ppm under the worst-case accident conditions. The analysis determined that a misloading event in the spent fuel checkerboard loading pattern would have the largest reactivity increase, requiring 870 ppm of soluble boron to meet the regulation. The boron dilution analysis identified a number of assorted sources for slow addition of unborated water to the SFP that could possibly continue undetected for an extended period of time. The maximum flow from any of these sources was determined to be 2 gpm, and dilution of the SFP from 1900 ppm to 870 ppm soluble boron would take approximately 72 days. Slow dilution by undetected sources is adequately addressed by sampling the SFP ~~on the 7 day frequency of SR 4.9.12~~. Higher flow-rate dilution scenarios would be identified through various alarms and building walkdowns, and could be addressed by sampling the SFP ~~on the 7 day frequency of SR 4.9.12~~. Higher flow-rate dilution scenarios would be identified through various alarms and building walkdowns, and could be addressed within a sufficient time to preclude dilution of the SFP to 870 ppm soluble room. Adequate safety is maintained in the case of a high flow-rate dilution of the SFP in accordance with 10 CFR 50.68(b)(4) because k_{eff} must remain below 1.0 (subcritical), even if the SFP were flooded with unborated water.

Add INSERT 2a

Three qualified storage configurations are allowed for Region 2 Fuel Storage locations, based on burnup versus enrichment restrictions: 1) uniform loading of assemblies, 2) checkerboard loading of high and low reactivity assemblies, and 3) checkerboard loading of fresh assemblies and empty cells. The storage configurations may be interspersed with each other throughout the SFP, provided that the geometric interface requirements are met. Checkerboard loading is not required for Region I Fuel Storage locations.
<(EC-18742, Ch. 65)

Add INSERT 2a

3/4.10.1 SHUTDOWN MARGIN

This special test exception provides that a minimum amount of CEA worth is immediately available for reactivity control when tests are performed for CEAs worth measurement. This special test exception is required to permit the periodic verification of the actual versus predicted core reactivity condition occurring as a result of fuel burnup or fuel cycling operations.

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

This special test exception permits individual CEAs to be positioned outside of their normal group heights and insertion limits during the performance of such PHYSICS TESTS as those required to (1) measure CEA worth, (2) determine core characteristics and (3) calibrate the reactor protection system.

Add INSERT 2a

3/4.10.3 REACTOR COOLANT LOOPS

This special test exception permits reactor criticality under no flow conditions and is required to perform certain startup and PHYSICS TESTS while at low THERMAL POWER levels.

3/4.10.4 CENTER CEA MISALIGNMENT

This special test exception permits the center CEA to be misaligned during PHYSICS TESTS required to determine the isothermal temperature coefficient and power coefficient.

3/4.10.5 NATURAL CIRCULATION TESTING

This special test exception permits all reactor coolant pumps to be secured during natural circulation testing and operator training for periods in excess of the 1 hour allowed by Specification 3.4.1.2.

3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 This section is deleted.

3/4.11.2.2 This section is deleted.

3/4.11.2.3 This section is deleted.

3/4.11.2.4 This section is deleted.

3/4.11.2.5 EXPLOSIVE GAS MIXTURE

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the WASTE GAS HOLDUP SYSTEM is maintained below the flammability limits of hydrogen and oxygen. Maintaining the concentration of hydrogen and oxygen below their flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

3/4.11.2.6 GAS STORAGE TANKS

This specification considers postulated radioactive releases due to a waste gas system leak or failure, and limits the quantity of radioactivity contained in each pressurized gas storage tank in the WASTE GAS HOLDUP SYSTEM to assure that a release would be substantially below the guidelines of 10 CFR Part 100 for a postulated event.

Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that in the event of an uncontrolled release of the tank's contents, the resulting total body exposure to a MEMBER OF THE PUBLIC at the nearest exclusion area boundary will not exceed 0.5 rem. This is consistent with Standard Review Plan 11.3, Branch Technical Position ETSB 11-5, "Postulated Radioactive Releases Due to a Waste Gas System Leak or Failure," in NUREG-0800, July 1981.

→(DRN 05-131, Ch. 39)

Note that this event has been deleted from the NRC Standard Review Plan (NUREG-0800). New Acceptance criteria were not prescribed using the Alternative Source Term dose methodology (10 CFR 50.67), therefore this specification will continue to use the dose acceptance criteria of 10 CFR 100.

←(DRN 05-131, Ch. 39)

Add INSERT 2a