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## LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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# 3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

## 3/4.0 APPLICABILITY

### LIMITING CONDITION FOR OPERATION

3.0.1 Limiting Conditions for Operation and ACTION requirements shall be applicable during the OPERATIONAL MODES or other conditions specified for each specification.

3.0.2 Adherence to the requirements of the Limiting Condition for Operation and/or associated ACTION within the specified time interval shall constitute compliance with the specification. In the event the Limiting Condition for Operation is restored prior to expiration of the specified time interval, completion of the ACTION statement is not required.

3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, action shall be initiated within 1 hour to place the unit in a MODE in which the Specification does not apply to placing it, as applicable, in:

1. At least HOT STANDBY within 6 hours,
2. At least HOT SHUTDOWN within the following 6 hours, and
3. At least COLD SHUTDOWN within the subsequent 24 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual Specifications.

3.0.4 Entry into an OPERATIONAL MODE or other specified applicability condition shall not be made unless the conditions of the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION statements unless otherwise excepted. This provision shall not prevent passage through OPERATIONAL MODES as required to comply with ACTION statements.

3.0.5 When a system, subsystem, train, component or device is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, it may be considered OPERABLE for the purpose of satisfying the requirements of its applicable Limiting Condition for Operation, provided: (1) its corresponding normal or emergency power source is OPERABLE; and (2) all of its redundant system(s), subsystem(s), train(s), component(s) and device(s) are OPERABLE, or likewise satisfy the requirements of this specification. Unless both conditions (1) and (2) are satisfied, within 2 hours action shall be initiated to place the unit in a MODE in which the applicable Limiting Condition for Operation does not apply by placing it as applicable in:

1. At least HOT STANDBY within 6 hours,
2. At least HOT SHUTDOWN within the following 6 hours, and
3. At least COLD SHUTDOWN within the subsequent 24 hours.

This Specification is not applicable in MODES 5 or 6.

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MAKEUP PUMPS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.4 Two makeup pumps shall be OPERABLE.

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

ACTION:

With only one makeup pump OPERABLE, restore the inoperable pump to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to 1% $\Delta k/k$ at 200°F within the next 6 hours; restore two 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 In addition to the requirements of Specification 4.0.5, ~~at~~ at least two makeup pumps shall be demonstrated OPERABLE at least once per 31 days by:

a. Starting (unless already operating) each pump from the control room.

b. Verifying, that on recirculation flow, each pump develops a discharge pressure of $\geq$ 2400 psig.

c. Verifying that each pump operates for at least 15 minutes.

d. Verifying that each pump is aligned to receive electrical power from separate OPERABLE essential busses.

*With RCS pressure $\geq$ 150 psig.

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ACTION: (Continued)

c) A power distribution map is obtained from the incore detectors and $F_Q$ and $F^N_{\Delta H}$ are verified to be within their limits within 72 hours.

d) Either the THERMAL POWER level is reduced to $\leq$ 60% of the THERMAL POWER allowable for the reactor coolant pump combination within one hour and within the next 4 hours the High Flux Trip Setpoint is reduced to $\leq$ 70% of the THERMAL POWER allowable for the reactor coolant pump combination, or

e) The remainder of the rods in the group with the inoperable rod are aligned to within $\pm$ 6.5% of the inoperable rod within one hour while maintaining the rod sequence, insertion and overlap limits of Figures 3.1-2 and 3.1-3; the THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation.

## SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each control rod shall be determined to be within the group average height limit by verifying the individual rod positions at least once per 12 hours except during time intervals when the Asymmetric Rod Fault Circuitry is inoperable, then verify the individual rod position(s) of the rod(s), with inoperable ~~Faut~~ Fault Circuitry at least once per 4 hours.

4.1.3.1.2 Each control rod not fully inserted shall be determined to be OPERABLE by movement of at least 2% in any one direction at least once every 31 days.

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## 3/4.2. POWER DISTRIBUTION LIMITS

### AXIAL POWER IMBALANCE

### LIMITING CONDITION FOR OPERATION

3.2.1 AXIAL POWER IMBALANCE shall be maintained within the limits shown on Figures 3.2-1a, -1b, -1c, and -1d and 3.2-2a, -2b, -2c and -2d.

APPLICABILITY: MODE 1 above 40% of RATED THERMAL POWER.*

### ACTION

With AXIAL POWER IMBALANCE exceeding the limits specified above, either:

a. Restore the AXIAL POWER IMBALANCE to within its limits within 15 minutes, or

b. Within one hour reduce power until imbalance limits are met or to 40% of RATED THERMAL POWER or less.

### SURVEILLANCE REQUIREMENTS

4.2.1. The AXIAL POWER IMBALANCE shall be determined to be within limits at least once every 12 hours when above 40% of RATED THERMAL POWER except when the AXIAL POWER IMBALANCE alarm is inoperable, then calculate the AXIAL POWER IMBALANCE at least once per hour.

*See Special Test ~~Exception~~ E Exception 3.10.1.

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS

4.2.3.1 $F^N_{\Delta H}$ shall be determined to be within its limit by using the incore detectors to obtain a power distribution map:

a. Prior to operation above 75 percent of RATED THERMAL POWER after each fuel loading, and

b. At least once per 31 Effective Full Power Days.

c. The provisions of Specification 4.0.4 are not applicable.

4.2.3.2 The measured $F^N_{\Delta H}$ of 4.2.3.1 above, shall be increased by 5% for measurement uncertainty.

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QUADRANT POWER TILT

LIMITING CONDITION FOR OPERATION

3.2.4 THE QUADRANT POWER TILT shall not exceed the Steady State Limit of Table 3.2-2.

APPLICABILITY: MODE 1 above 15% of RATED THERMAL POWER.*

ACTION:

a. With the QUADRANT POWER TILT determined to exceed the Steady State Limit but less than or equal to the Transient Limit of Table 3.2-2.

   1. Within 2 hours:

      a) Either reduce the QUADRANT POWER TILT to within its Steady State Limit, or

      b) Reduce THERMAL POWER so as not to exceed THERMAL POWER, including power level cutoff, allowable for the reactor coolant pump combination less at least 2% for each 1% of QUADRANT POWER TILT in excess of the Steady State Limit and within 4 hours, reduce the High Flux Trip Setpoint and the Flux-Δ Flux-Flow Trip Setpoint at least 2% for each 1% of QUADRANT POWER TILT in excess of the Steady State Limit.

   2. Verify that the QUADRANT POWER TILT is within its Steady State Limit within 24 hours after exceeding the Steady State Limit or reduce THERMAL POWER to less than 60% of THERMAL POWER allowable for the reactor coolant pump combination within the next 2 hours and reduce the High Flux Trip Setpoint to $\leq$ 65.5% of THERMAL POWER allowable for the reactor coolant pump combination within the next 4 hours.

   3. Identify and correct the cause of the out of limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 60% of THERMAL POWER allowable for the reactor coolant pump combination may proceed provided that the QUADRANT POWER TILT is verified within its Steady State Limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

*See Special Test Exception 3.10.1.

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LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

b. With the QUADRANT POWER TILT determined to exceed the Transient Limit but less than the Maximum Limit of Table 3.2-2, due to misalignment of either a safety, regulating or axial power shaping rod:

1. Reduce THERMAL POWER at least 2% for each 1% of indicated QUADRANT POWER TILT in excess of the Steady State Limit within 30 minutes.

2. Verify that the QUADRANT POWER TILT is within its Transient Limit within 2 hours after exceeding the Transient Limit or reduce THERMAL POWER to less than 60% of THERMAL POWER allowable for the reactor coolant pump combination within the next 2 hours and reduce the High Flux Trip Setpoint to $\leq$ 65.5% of THERMAL POWER allowable for the reactor coolant pump combination within the next 4 hours.

3. Identify and correct the cause of the out of limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 60% of THERMAL POWER allowable for the reactor coolant pump combination may proceed provided that the QUADRANT POWER TILT is verified within its Steady State Limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

c. With the QUADRANT POWER TILT determined to exceed the Transient Limit but less than the Maximum Limit of Table 3.2-2, due to causes other than the misalignment of either a safety, regulating or axial power shaping rod:

1. Reduce THERMAL POWER to less than 60% of THERMAL POWER allowable for the reactor coolant pump combination within 2 hours and reduce the High Flux Trip Setpoint to $\leq$ 65.5% of THERMAL POWER allowable for the reactor coolant pump combination within the next 4 hours.

2. Identify and correct the cause of the out of limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 60% of THERMAL POWER allowable for the reactor coolant pump combination may proceed provided that the QUADRANT POWER TILT is verified within its Steady State Limit at least once per hour for 12 hours or until verified at 95% or greater RATED THERMAL POWER.

Table 3.2-2 ~~Quadrant Power Tilt~~ QUADRANT POWER TILT Limits

| | Steady state limit | Transient limit | Maximum limit |
|---|---|---|---|
| Measurement independent QUADRANT POWER TILT | 4.92 | 11.07 | 20.0 |
| QUADRANT POWER TILT as measured by: | | | |
| Symmetrical incore detector system, 0-50 ±10 EFPD | 3.37 | 8.52 | 20.0 |
| Symmetrical incore detector system, after 50 ±10 EFPD | 3.02 | 8.52 | 20.0 |
| Power range channels | 1.96 | 6.96 | 20.0 |
| Minimum incore detector system | 1.90 | 4.40 | 20.0 |

TABLE 3.3-1 (Continued)

ACTION STATEMENTS (Continued)

and the inoperable channel above may be bypassed for up to 30 minutes in any 24 hour period when necessary to test the trip breaker associated with the logic of the channel being tested per Specification 4.3.1.1.1, and

c. Either, THERMAL POWER is restricted to ≤ 75% of ~~RATED~~ RATED THERMAL POWER and the High Flux Trip Setpoint is reduced to ≤ 85% of RATED THERMAL POWER within 4 hours or the QUADRANT POWER TILT is monitored at least once per 12 hours.

ACTION 3 - With the number of OPERABLE channels one less than the Total Number of Channels STARTUP and POWER OPERATION may proceed provided both of the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within one hour.

b. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1, and the inoperable channel above may be bypassed for up to 30 minutes in any 24 hour period when necessary to test the trip breaker associated with the logic of the channel being tested per Specification 4.3.1.1.1.

ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL ~~Power~~ POWER level:

a. ≤ 5% of RATED THERMAL POWER restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

b. > 5% of RATED THERMAL POWER, POWER OPERATION may continue.

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TABLE 3.3-1 (Continued)

ACTION STATEMENTS (Continued)

ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. $\leq 10^{-10}$ amps on the Intermediate Range (IR) instrumentation, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above $10^{-10}$ amps on the IR instrumentation.

b. $> 10^{-10}$ amps on the IR instrumentation, operation may continue.

ACTION 6 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 within one hour and at least once per 12 hours thereafter.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels STARTUP and/or POWER OPERATION may proceed provided all of the following conditions are satisfied:

a. Within 1 hour:

1. Place the inoperable channel in the tripped condition, or

2. Remove power supplied to the control rod trip device associated with the inoperative channel.

b. One additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1, and the inoperable channel above may be bypassed for up to 30 minutes in any 24 hour period when necessary to test the trip breaker associated with the logic of the channel being tested per Specification 4.3.1.1.1. The inoperable channel above may not be bypassed to test the logic of a channel of the trip system associated with the inoperable channel.

ACTION 8 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours.

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TABLE 4.3-1 (Continued)

NOTATION

(1) - If not performed in previous 7 days.

(2) - Heat balance only, above 15% of RATED THERMAL POWER.

(3) - When THERMAL POWER [TP] is above 30% of RATED THERMAL POWER [RTP], compare out-of-core measured AXIAL POWER IMBALANCE [$API_O$] to incore measured AXIAL POWER IMBALANCE [$API_I$]. Recalibrate if:

$$\frac{RTP}{TP} [API_O - API_I] \geq 3.5\%$$

(4) - AXIAL POWER IMBALANCE and loop flow indications only.

(5) - Verify at least one decade overlap if not verified in previous 7 days.

(6) - Each train tested every other month.

(7) - Neutron detectors may be excluded from CHANNEL CALIBRATION.

(8) - Flow rate measurement sensors may be excluded from CHANNEL CALIBRATION. However, each flow measurement sensor shall be calibrated at least once per 18 months.~~***~~

* - With any control rod drive trip breaker closed.

** - When Shutdown Bypass is actuated.

~~*** - Eighteen month surveillance test due in March 1982 delayed until March 31, 1982.~~

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TABLE 3.3-3

SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

| FUNCTIONAL UNIT | TOTAL NO. OF UNITS | UNITS TO TRIP | MINIMUM UNITS OPERABLE | APPLICABLE MODES | ACTION |
|---|---|---|---|---|---|
| 1. INSTRUMENT STRINGS | | | | | |
| a. Containment Radiation - High | 4 | 2 | 3 | 1,2,3,4,6**** | 9# |
| b. Containment Pressure - High | 4 | 2 | 3 | 1, 2, 3 | 9# |
| c. Containment Pressure - High-High | 4 | 2 | 3 | 1, 2, 3 | 9# |
| d. RCS Pressure - Low | 4 | 2 | 3 | 1, 2, 3* | 9# |
| e. RCS Pressure - Low-Low | 4 | 2 | 3 | 1, 2, 3** | 9# |
| f. BWST Level - Low-Low | 4 | 2 | 3 | 1, 2, 3 | 9# |
| 2. OUTPUT LOGIC | | | | | |
| a. Incident Level #1: Containment Isolation | 2 | 1 | 2 | 1,2,3,4,6**** | 10 |
| b. Incident Level #2: High Pressure Injection and Starting Diesel Generators | 2 | 1 | 2 | 1, 2, 3, 4 | 10 |
| c. Incident Level #3: Low Pressure Injection | 2 | 1 | 2 | 1, 2, 3, 4 | 10 |
| d. Incident Level #4: Containment Spray | 2 | 1 | 2 | 1, 2, 3, 4 | 10 |
| e. Incident Level #5: Containment Sump Recirculation Permissive | 2 | 1 | 2 | 1, 2, 3, 4 | 10 |

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## TABLE 3.3-3

## SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

| FUNCTIONAL ~~FUNCTION~~ UNIT | TOTAL NO. OF UNITS | UNITS TO TRIP | MINIMUM UNITS OPERABLE | APPLICABLE MODES | ACTION |
|---|---|---|---|---|---|
| 3. MANUAL ACTUATION | | | | | |
| a. SFAS (except Containment Spray and Emergency Sump Recirculation) | 2 | 2 | 2 | 1,2,3,4,6**** | 11 |
| b. Containment Spray | 2 | 2 | 2 | 1,2,3,4 | 11 |
| 4. SEQUENCE LOGIC CHANNELS | | | | | |
| a. Sequencer | 4 | 2*** | 3 | 1,2,3,4 | 9# |
| b. Essential Bus Feeder Breaker Trip (90%) | 2 | 1 | 2***** | 1,2,3,4 | 14# |
| c. Diesel Generator Start, Load Shed on Essential Bus (59%) | 2 | 1 | 2 | 1,2,3,4 | 14# |
| 5. INTERLOCK CHANNELS | | | | | |
| a. Decay Heat Isolation Valve | 1 | 1 | 1 | 1,2,3,4,5 | 12# |
| b. Pressurizer Heaters | 2 | 2 | 2 | 3,4,5 | 13# |

TABLE 3.3-3 (Continued)
TABLE NOTATION

* Trip function may be bypassed in this MODE with RCS pressure below 1800 psig. Bypass shall be automatically removed when RCS pressure exceeds 1800 psig.

** Trip function may be bypassed in this MODE with RCS pressure below 600 psig. Bypass shall be automatically removed when RCS pressure exceeds 600 psig.

*** One must be in SFAS Channels #1 or #3, the other must be in Channels #2 or #4.

**** This instrumentation must be OPERABLE during core alterations or movement of irradiated fuel within the containment to meet the requirements of Tech. Spec 3.9.4.

***** All functional units may be bypassed for up to one minute when starting each Reactor Coolant Pump or Circulating Water Pump.

\# The provisions of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

ACTION 9 - With the number of OPERABLE functional units one less than the Total Number of Units, ~~startup~~ STARTUP and/or ~~power operation~~ POWER OPERATION may proceed provided both of the following conditions are satisfied:

a. The inoperable functional unit is placed in the tripped condition within one hour. For functional unit 4a the sequencer channel shall be placed in the tripped condition by physical removal of the sequencer module.

b. The Minimum Units OPERABLE requirement is met; however, one additional functional unit may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

ACTION 10 - With any component in the Output Logic inoperable, trip the associated components within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION 11 - With the number of OPERABLE Units one less than the Total Number of Units, restore the inoperable functional unit to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION 12 - a. With less than the Minimum Units OPERABLE and reactor coolant pressure $\geq$ 438 psig, both Decay Heat Isolation Valves (DH11 and DH12) shall be verified closed.

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TABLE 4.3-2

SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| FUNCTIONAL UNIT | CHANNEL CHECK | CHANNEL CALIBRATION | CHANNEL FUNCTIONAL TEST | MODES IN WHICH SURVEILLANCE REQUIRED |
|---|---|---|---|---|
| 1. INSTRUMENT STRINGS | | | | |
| a. Containment Radiation - High | S | ~~R*~~ | M | 1,2,3,4,6# |
| b. Containment Pressure - High | S | R | M(2) | 1, 2, 3 |
| c. Containment Pressure - High-High | S | R | M(2) | 1, 2, 3 |
| d. RCS Pressure - Low | S | R | M | 1, 2, 3 |
| e. RCS Pressure - Low-Low | S | R | M | 1, 2, 3 |
| f. BWST Level - Low -Low | S | R | M | 1, 2, 3 |
| 2. OUTPUT LOGIC | | | | |
| a. Incident Level #1: Containment Isolation | S | R | M | 1,2,3,4,6# |
| b. Incident Level #2: High Pressure Injection and Starting Diesel Generators | S | R | M | 1, 2, 3, 4 |
| c. Incident Level #3: Low Pressure Injection | S | R | M | 1, 2, 3, 4 |
| d. Incident Level #4: Containment Spray | S | R | M | 1, 2, 3, 4 |
| e. Incident Level #5: Containment Sump Recirculation Permissive | S | R | M | 1, 2, 3, 4 |
| 3. MANUAL ACTUATION | | | | |
| a. SFAS (Except Containment Spray and Emergency Sump Recirculation) | NA | NA | M(1) | 1,2,3,4,6# |
| b. Containment Spray | NA | NA | M(1) | 1, 2, 3 |
| 4. SEQUENCE LOGIC CHANNELS | S | NA | M | 1, 2, 3, 4 |

~~*Eighteen month surveillance test due in March 1982 delayed until March 31, 1982.~~

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TABLE 4.3-2 (Continued)

SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| FUNCTIONAL UNIT | CHANNEL CHECK | CHANNEL CALIBRATION | CHANNEL FUNCTIONAL TEST | MODES IN WHICH SURVEILLANCE REQUIRED |
|---|---|---|---|---|
| 5. INTERLOCK CHANNELS | | | | |
| a. Decay Heat Isolation Valve | S | R | ** | 1, 2, 3, 4, 5 |
| b. Pressurizer Heater | S | R | ** | 3,4,5 |

**See Specification 4.5.2.d.1

TABLE NOTATION

(1) Manual actuation switches shall be tested at least once per 18 months during shutdown. All other circuitry associated with manual safeguards actuation shall receive a CHANNEL FUNCTIONAL TEST at least once per 31 days.

(2) The CHANNEL FUNCTIONAL TEST shall include exercising the transmitter by applying either vacuum or pressure to the appropriate side of the transmitter. The provisions of Section 3.0.3 are not applicable for the first test of each channel following the first refueling outage.

# The surveillance requirements of Section 4.9.4 apply during core alterations or movement of irradiated fuel within the containment.

TABLE 3.3-11 (Continued)

TABLE NOTATION

* May be bypassed when steam pressure is below 650 psig. Bypass shall be automatically removed when the steam pressure exceeds 650 psig.

\# The provisions of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, ~~Startup~~ STARTUP and/or ~~power operation~~ POWER OPERATION may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable section of the channel is placed in the tripped condition within 1 hour.

ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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## TABLE 4.3-11

### STEAM AND FEEDWATER RUPTURE CONTROL SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| FUNCTIONAL UNIT | CHANNEL CHECK | CHANNEL CALIBRATION | CHANNEL FUNCTIONAL TEST |
|---|---|---|---|
| 1. Instrument Channel | | | |
| a. Steam Line Pressure - Low | S | R | M~~+~~ |
| b. Steam Generator Level - Low | S | R | M |
| c. Steam Generator - Feedwater Differential Pressure-High | S | R | M |
| d. Reactor Coolant Pumps-Loss of | S | R | M |
| 2. Manual Actuation | NA | NA | R |

~~+The surveillance period for Steam Line Pressure-Low Instrument is extended to 2400 hours, September 16, 1982.~~

INSTRUMENTATION

ANTICIPATORY REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2.3 The Anticipatory Reactor Trip System instrumentation channels of Table 3.3-~~15~~ 17 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3-~~15~~ 17

ACTION: As shown in Table 3.3-~~15~~ 17

SURVEILLANCE REQUIREMENTS

4.3.2.3 The Anticipatory Reactor Trip System shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST for the modes and at the frequencies shown in Table 4.3-~~15~~ 17.

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## TABLE 3.3-~~15~~ 17

## ANTICIPATORY REACTOR TRIP SYSTEM INSTRUMENTATION

| FUNCTIONAL UNIT | TOTAL NO. OF CHANNELS | CHANNELS TO TRIP | MINIMUM CHANNELS OPERABLE | APPLICABLE MODES | ACTION |
|---|---|---|---|---|---|
| 1. Turbine Trip | 4 | 2[(a)] | 3 | 1[(b)] | 16 |
| 2. Trip of Both Main Feed Pump Turbines | 4 | 2 | 3 | 1 | 17 |
| 3. Output Logic | 4 | 2 | 3 | 1 | 18 |

(a) Trip automatically bypassed below 25 percent of RATED THERMAL POWER
(b) Applicable only above 25 percent of RATED THERMAL POWER

17
TABLE 3.3-~~15~~ (CONTINUED)

ACTION STATEMENTS

ACTION 16 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirements, restore the inoperable channel to OPERABLE status within 72 hours or reduce reactor power to less than 25 percent of RATED THERMAL POWER within the next 6 hours.

ACTION 17 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirements, restore the inoperable channel to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours.

ACTION 18 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP ~~and~~ or POWER OPERATION may proceed provided both of the following conditions are satisfied:

a) The control rod drive trip breaker associated with the inoperable channel is placed in the tripped condition within one hour.

b) The Minimum Channels OPERABLE requirement is met; however, one additional control rod drive trip breaker associated with another channel may be tripped for up to 2 hours for surveillance testing per Specification 4.3.2.3, after reclosing the control rod drive trip breaker opened in a) above.

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## TABLE 4.3-~~15~~ 17

### ANTICIPATORY REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| FUNCTIONAL UNIT | CHANNEL CHECK | CHANNEL CALIBRATION | CHANNEL FUNCTIONAL TEST | MODES IN WHICH SURVEILLANCE IS REQUIRED |
|---|---|---|---|---|
| 1. Turbine Trip [(a)] | S | Not Applicable | M | 1[(b)] |
| 2. Main Feed Pump Turbine Trip | S | Not Applicable | M | 1 |
| 3. Output Logic | Not Applicable | Not Applicable | M | 1 |

(a) Trip automatically bypassed below 25 percent of RATED THERMAL POWER
(b) Applicable only above 25 percent of RATED THERMAL POWER



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## TABLE 3.3-15

## RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

| INSTRUMENT | MINIMUM CHANNELS OPERABLE | APPLICABILITY | ACTION |
|---|---|---|---|
| 1. Gross Radioactivity Monitors Providing Alarms and Automatic Termination of Release | | | |
| a. Liquid Radwaste Effluent Line (either Miscellaneous or Clean, but not both simultaneously) | 1 | (1) | 18 |
| 2. Flow Rate Measurement Devices | | | |
| a. Liquid Radwaste Effluent Line | 1 | (1) | 19 |
| b. Dilution Flow to Collection Box | 1 | (1) | 19 |
| 3. Gross Beta or Gamma Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release | | | |
| a. Turbine Buil[illegible]/Storm Sewer Drain | 1 | (1) | 19, 20 |

TABLE 3.3-15 (Continued)

TABLE NOTATION

(1) During radioactive releases via this pathway

ACTION 18 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may be resumed, provided that prior to initiating a release:

1. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.1 for analyses performed with each batch;

2. At least two independent verifications of the release rate calculations are performed;

3. At least two independent verifications of the discharge valving are performed;

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 19 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours during actual releases. Pump curves may be used to estimate flow.

ACTION 20 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided that, at least once per 12 hours, grab samples are collected and analyzed for gross radioactivity (beta or gamma) at a lower limit of detection no greater than .. $10^{-7}\mu Ci/ml$.

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TABLE 4.3-15

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| INSTRUMENT | CHANNEL CHECK | SOURCE CHECK | CHANNEL CALIBRATION | CHANNEL FUNCTIONAL TEST |
|---|---|---|---|---|
| 1. Gross Beta or Gamma Radioactivity Monitors Providing Alarm and Automatic Isolation | | | | |
| a. Liquid Radwaste Effluents Line | D(1) | P | R(3) | Q(2) |
| 2. Flow Rate Monitors | | | | |
| a. Liquid Radwaste Effluent Line | D(4) | N.A. | R | Q |
| b. Dilution Flow to Collection Box | D(4) | N.A. | R | Q |

TABLE 4.3-15 (Continued)

TABLE NOTATION

(1) During releases via this pathway.

(2) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if the instrument indicates measured levels above the alarm/trip setpoint.

(3) The initial CHANNEL CALIBRATION for radioactivity measurement instrumentation shall be performed using one or more of the reference standards certified by the National Bureau of Standards or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards should permit calibrating the system over its intended range of energy and rate capabilities. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration should be used, at intervals of at least once per eighteen months. For high range monitoring instrumentation, where calibration with a radioactive source is impractical, an electronic calibration may be substituted for the radiation source calibration.

(4) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once daily on any day on which continuous, periodic, or batch releases are made.

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## TABLE 4.3-6

### REMOTE SHUTDOWN MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| INSTRUMENT | CHANNEL CHECK | CHANNEL CALIBRATION |
|---|---|---|
| 1. Reactor Trip Breaker Indication | M | N.A. |
| 2. Reactor Coolant Temperature-Hot Legs | M | R |
| 3. Reactor Coolant System Pressure | M | R |
| 4. Pressurizer Level | M | R |
| 5. Steam Generator Outlet Steam Pressure | M | R~~*~~ |
| 6. Steam Generator Startup Range Level | M | R |
| 7. Control Rod Position Limit Switches | M | R |

~~*18 month surveillance test due May 17, 1983, may be delayed until 2400 hours September 17, 1983.~~

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## TABLE 4.3-10

### POST-ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| INSTRUMENT | CHANNEL CHECK | CHANNEL CALIBRATION |
|---|---|---|
| 1. SG Outlet Steam Pressure | M | R~~*~~ |
| 2. RC Loop Outlet Temperature | M | R |
| 3. RC Loop Pressure | M | R |
| 4. Pressurizer Level | M | R |
| 5. SG Startup Range Level | M | R |
| 6. Auxiliary Feedwater Status | M | NA |
| 7. Containment Vessel Hydrogen | M | R |
| 8. Containment Vessel Post-Accident Radiation | M | R |
| 9. Containment Vessel Isolation Status | M | NA |
| 10. SFAS Status | M | NA |
| 11. Safety Features Equipment Status | M | NA |
| 12. RPS Status | M | NA |
| 13. SFRCS Status | M | NA |
| 14. High Pressure Injection Flow | M | R |

~~*18 month surveillance test due May 17, 1983, may be delayed until 2400 hours September 17, 1983.~~

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## CHLORINE DETECTION SYSTEMS

### LIMITING CONDITION FOR OPERATION

3.3.3.7 The chlorine detection system, with the alarm/trip setpoint adjusted to actuate at a chlorine concentration of $\leq$ 5 ppm, shall be OPERABLE with at least two OPERABLE chlorine detectors located in the Reactor Control Room ventilation air intake.

APPLICABILITY: MODES 1, 2, 3 and 4

ACTION:

a. With one chlorine detector or the chlorine detection system inoperable, within 1 hour initiate and maintain operation of the control room ventilation system in the recirculation mode of operation; restore the inoperable detection system or detector to OPERABLE status within 30 days or 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.

### SURVEILLANCE REQUIREMENTS

4.3.3.7 The chlorine detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days, and a CHANNEL CALIBRATION at least once per 18 months.

## TABLE 3.3-14

## FIRE DETECTION INSTRUMENTS

| INSTRUMENT LOCATION | MINIMUM INSTRUMENTS OPERABLE HEAT | FLAME | SMOKE |
|---|---|---|---|
| **1. Containment** | | | |
| #a. FDZ-RCP 1 Elev. 603' | 0 | 0 | 1 * |
| #b. FDZ-RCP 2 Elev. 603' | 0 | 0 | 1 * |
| #c. FDZ-RCP 3 Elev. 603' | 0 | 0 | 1 * |
| #d. FDZ-RCP 4 Elev. 603' | 0 | 0 | 1 * |
| #e. FDZ-PZR Elev. 603' | 0 | 0 | 1 * |
| #f. FDZ 214 - Core Flooding Tank 1-1 Area Elev. 565' | 0 | 0 | 3 * |
| #g. FDZ 215 - Ctmt. Letdown Cooler Area Elev. 565' | 0 | 0 | 2 * |
| #h. FDZ 220 - Incore Instrument Trench Area Elev. 565' | 0 | 0 | 4 * |
| #i. FDZ 317 - Hatch Area - Elev. 565' | 0 | 0 | 20 * |
| #j. FDZ 410 - East Passage - Elev. 603'/657' | 0 | 0 | 9 * |
| **2. Containment Annulus** | | | |
| #a. FDZ-A208 Elev. 590' | 0 | 0 | 10 |
| #b. FDZ-236H Elev. 774' | 0 | 0 | 5 |
| #c. FDZ-236L Elev. 590' | 0 | 0 | 9 |
| **3. Auxiliary Building** | | | |
| a. FDZ 402 - #1 Electrical Penetration Rm. Elev. 603' | 0 | 0 | 12 |
| b. FDZ 405 - Auxiliary Building Storage Rm. Elev. 603' | 0 | 0 | 1 |
| c. FDZ 427 - #2 Electrical Penetration Rm. Elev. 603' | 0 | 0 | 7 |
| d. FDZ 303 - #3 Mechanical Pentration Rm. Elev. 585' | 0 | 0 | 12 |
| e. FDZ 304 - Corridor to Mech. Pent Rms 3&4 Elev. 585' | 0 | 0 | 4 |
| f. FDZ 310 - Passage to BA Mix Tank Elev. 585' | 0 | 0 | 8 |
| g. FDZ 312 - Spent Fuel Pool Pump Rm. Elev. 585' | 0 | 0 | 4 |
| h. FDZ 314 - #4 Mech. Pent. Room Elev. 585' | 0 | 0 | 17 |
| i. FDZ 300 - Fuel Handling Area Elev. 585' | 0 | 0 | 5 |

#Fire Detectors in high radiation areas which are NOT accessible.

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TABLE 3.3-14 (Continued)

| INSTRUMENT LOCATION | MINIMUM INSTRUMENTS OPERABLE | | |
|---|---|---|---|
| | HEAT | FLAME | SMOKE |
| 3. Auxiliary Building (Continued) | | | |
| j. FDZ 209 - Corridor to #1 Mech. Pent. Rm. Elev. 565' | 0 | 0 | 3 |
| k. FDZ 227 - Boric Acid Evap Passageway Elev. 565' | 0 | 0 | 6 |
| l. FDZ 208 - #1 Mechanical Penetration Rm. Elev. 565' | 0 | 0 | 10 |
| m. FDZ 231 - Clean Waste Booster Pump Rm. Elev. 565' | 0 | 0 | 1 |
| n. FDZ 232 - Primary & Deborating Demin Vlv Rm. - Elev. 565' | 0 | 0 | 1 |
| o. FDZ 234 - Boric Acid Evaporator Rm 1-2 Elev. 565' | 0 | 0 | 1 |
| p. FDZ 235 - Boric Acid Evaporator Rm 1-1 Elev. 565' | 0 | 0 | 1 |
| q. FDZ 236 - #2 Mechanical Penetration Rm. Elev. 565' | 0 | 0 | 4 |
| r. FDZ 240 - Boric Acid Addition Tank Rm. Elev. 565' | 0 | 0 | 5 |
| s. FDZ 241 - Passage to B.A. Addition Tk Rm. Elev. 565' | 0 | 0 | 2 |
| t. FDZ 101 - Equipment and Pipe Tunnel Elev. 545' | 0 | 0 | 1 |
| u. FDZ 105 - ECCS Pump Room 1-1 Elev. 545' | 0 | 0 | 4 |
| v. FDZ 110 - Corridor to Central Area of Aux Bldg. - Elev. 545' | 0 | 0 | 5 |
| w. FDZ 113 - Decay Heat Exchanger Pit Elev. 545' | 0 | 0 | 1 |
| x. FDZ 115 - ECCS Pump Room 1-2 Elev. 545' | 0 | 0 | 2 |
| y. FDZ 124 - Clean Waste Receiver Tank Rm. 1-1 - Elev. 545' | 0 | 0 | 4 |
| 4. Auxiliary Building Fan Rooms | | | |
| a. FDZ 500 - Radwaste & Fuel Handling Area and Air Supply Area - Elev. 623' | 0 | 0 | 20 |
| b. FDZ 501 - Radwaste Exhaust Equipment and Main Station Exhaust Fan Room Elev. 623' | 0 | 0 | 22 |
| c. FDZ 515 - Purge and Exhaust Equipment Rm. Elev. 623' | 0 | 0 | 22 |
| d. FDZ 516 - Non-rad Air and Exhaust Equip. Rm. - Elev. 623' | 0 | 0 | 5 |

TABLE 3.3-14 (Continued)

| TRUMENT LOCATION | MINIMUM INSTRUMENTS OPERABLE HEAT | FLAME | SMOKE |
|---|---|---|---|
| 5. Control Room Complex | | | |
| a. FDZ 505 - Main Control Board Cabinets Elev. 623' | 0 | 0 | 3 |
| b. FDZ 505 - Control Cabinet Room Elev. 623' | 0 | 0 | 5 |
| c. FDZ 505 - Computer Room - Elev. 623' | 0 | 0 | 1 |
| 6. Cable Spreading Room | | | |
| a. FDZ 422A - Elev. 613' | 0 | 0 | 5 |
| 7. A/C Equipment Room | | | |
| a. FDZ 603 - Elev. 643' | 0 | 0 | 11 |
| 8. Diesel Generator Rooms | | | |
| **a. FDZ 318 - Diesel Generator Rm. 1-1 Elev. 585' | 0 | 0 | 5 |
| **b. FDZ 319 - Diesel Generator Rm. 1-2 Elev. 585' | 0 | 0 | 4 |
| c. FDZ 321A - Diesel Generator Day Tank Room 1-1 - Elev. 5 | 0 | 0 | 1 |
| d. FDZ 320A - Diesel Generator Day Tank Room 1-2 - Elev. 5 | 0 | 0 | 1 |
| 9. Battery Rooms | | | |
| a. FDZ 428A - Battery Room B - Elev. 603' | 0 | 0 | 2 |
| b. FDZ 429B - Battery Room A - Elev. 603' | 0 | 0 | 2 |
| 10. Component Cooling Water Pump Room | | | |
| a. FDZ 328 - Elev. 585' | 0 | 0 | 9 |
| 11. Feed Pump Rooms | | | |
| a. FDZ 237 - Auxiliary Feed Pump 1-1 Elev. 565' | 0 | 0 | 3 |
| b. FDZ 238 - Auxiliary Feed Pump 1-2 Elev. 565' | 0 | 0 | 3 |

TABLE 3.3-14 (Continued)

| INSTRUMENT LOCATION | MINIMUM INSTRUMENTS OPERABLE | | |
|---|---|---|---|
| | HEAT | FLAME | SMOKE |
| 12. Switchgear Rooms | | | |
| a. FDZ 324 - CD High Voltage Switchgear Elev. 585' | 0 | 0 | 3 |
| b. FDZ 325 - A High Voltage Switchgear Elev. 585' | 0 | 0 | 8 |
| c. FDZ 323 - B High Voltage Switchgear Elev. 585' | 0 | 0 | 11 |
| d. FDZ 428 - F High Voltage Switchgear Elev. 603' | 0 | 0 | 12 |
| e. FDZ 429 - E High Voltage Switchgear Elev. 603' | 0 | 0 | 6 |
| 13. Intake Structure | | | |
| a. FDZ 052 - Diesel Fire Pump Room Elev. 576' | 0 | 0 | 1 |
| b. FDZ 052- Service Water Pump Room Elev. 576' | 0 | 0 | 3 |
| c. FDZ 053 - Service Water Vlv. Room Elev. 565' | 0 | 0 | 6 |

*The fire detection instruments located within the Containment are not required to be OPERABLE during the performance of Type A Containment Leakage Rate Tests.

**These detectors automatically actuate fire suppression systems.

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## 3/4.4.1. 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:

a. With one reactor coolant pump not in operation, STARTUP and POWER OPERATION may be initiated and may proceed provided THERMAL POWER is restricted to less than 79.7% of RATED THERMAL POWER and within 4 hours the setpoints for the following trips have been reduced to the values specified in Specification 2.2.1 for operation with three reactor coolant pumps operating:

1. High Flux
2. Flux-ΔFlux-Flow

### SURVEILLANCE REQUIREMENTS

4.4.1.1.1 The above required reactor coolant loops shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.~~2~~ 1.2 The reactor protective instrumentation channels specified in the applicable ACTION statement above shall be verified to have had their trip setpoints changed to the values specified in Specification 2.2.1 for the applicable number of reactor coolant pumps operating either:

a. Within 4 hours after switching to a different pump combination if the switch is made while operating, or

b. Prior to reactor criticality if the switch is made while shutdown.

*See Special Test Exception 3.10.3.

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SHUTDOWN AND HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 a. At least two of the coolant loops listed below shall be OPERABLE:

1. Reactor Coolant Loop 1 and its associated steam generator,
2. Reactor Coolant Loop 2 and its associated steam generator,
3. Decay Heat Removal Loop 1,*
4. Decay Heat Removal Loop 2.*

b. At least one of the above coolant loops shall be in operation.**

c. Not more than one decay heat removal pump may be operated with the sole suction path through DH-11 and DH-12 unless the control power has been removed from the DH-11 and DH-12 valve operator, or manual valves DH-21 and DH-23 are opened.

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

APPLICABILITY: MODES 3, 4 and 5

ACTION:

a. With less than the above required coolant loops OPERABLE, immediately initiate corrective action to return the required coolant loops to OPERABLE status as soon as possible, or be in COLD SHUTDOWN within 20 hours.

b. With none of the above required coolant loops in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required coolant loop to operation.

---

*The normal or emergency power source may be inoperable in MODE 5. This loop may not be selected in MODE 3 unless the primary side temperature and pressure are within the decay heat removal system's design conditions.

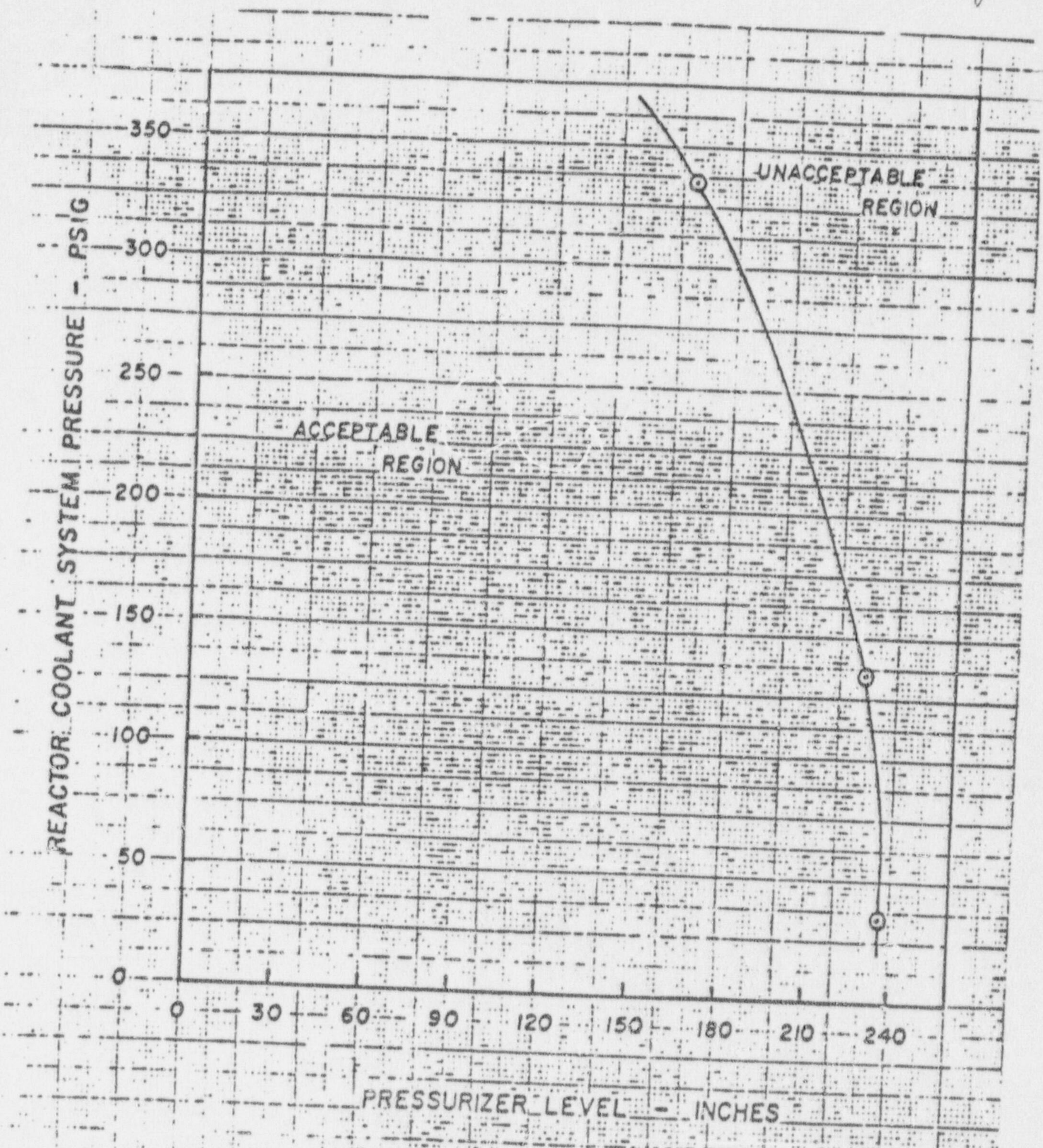
**The decay heat removal pumps may be de-energized for up to 1 hour provided (1) no operations are permitted that would cause dilution of the reactor coolant system boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 The required decay heat removal loop(s) shall be determined OPERABLE per Specification 4.0.5.

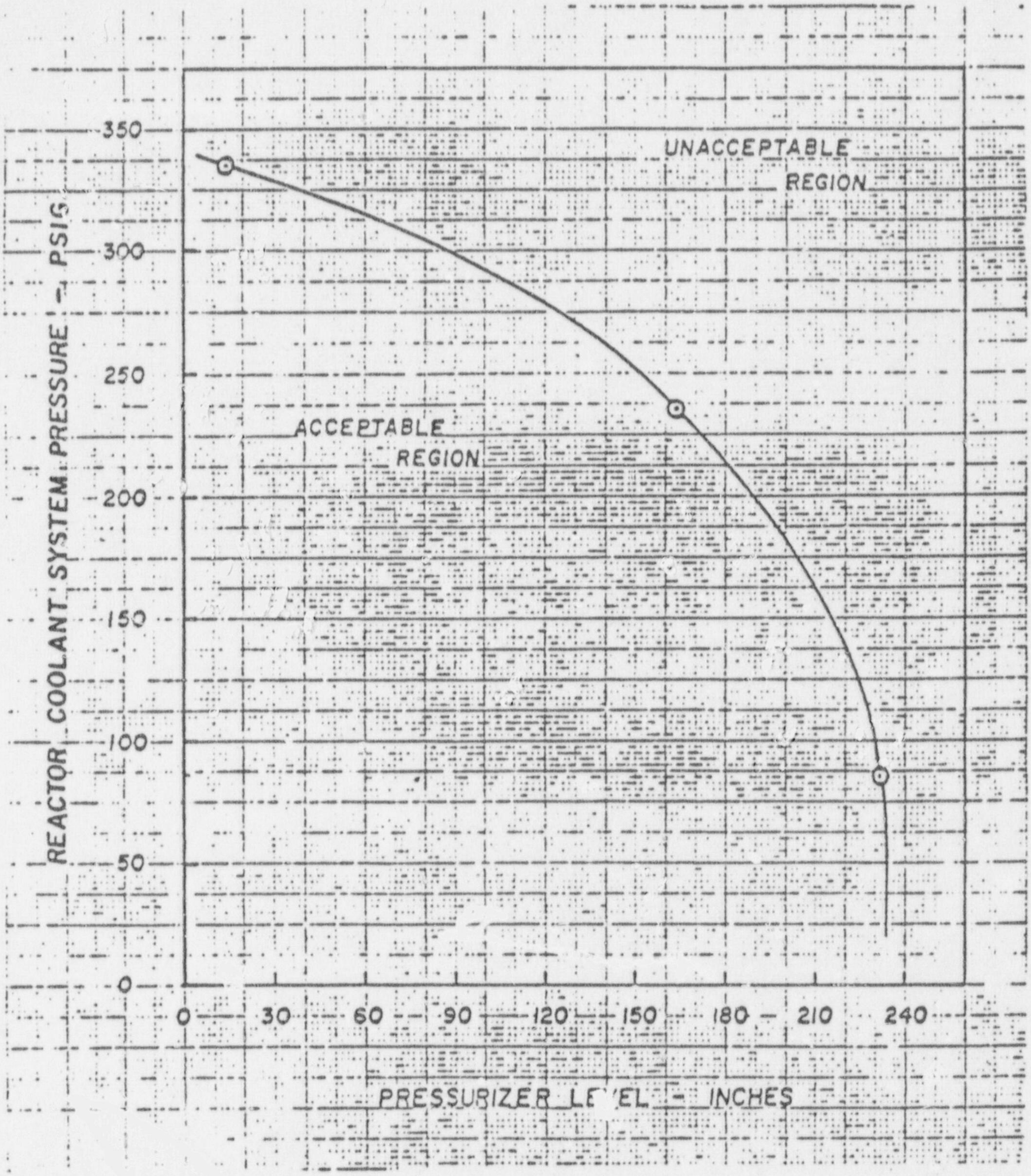
4.4.1.2.2 The required steam generator(s) shall be determined OPERABLE by verifying secondary side level to be greater than or equal to (a) 18 inches above the lower tube sheet once per 12 hours if an associated reactor coolant pump is operating, or, (b) 35 inches above the lower tube sheet once per 12 hours if no reactor coolant pumps are operating.

4.4.1.2.3 At least one coolant loop shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.




Reactor Coolant System Pressure - Pressurizer Level Limits for inoperable Decay Heat Removal System Relief Valve in MODE 4

Figure ~~3.4.2-a~~ 3.4-2a




Reactor Coolant System Pressure - Pressurizer Level Limits for inoperable Decay Heat Removal System Relief Valve in MODE 5

Figure ~~3.4.2-b~~ 3.4-2b

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## PRESSURIZER

### LIMITING CONDITION FOR OPERATION

3.4.4 The pressurizer shall be OPERABLE with:

a. A steam bubble,

b. A water level between 45 and 305 inches.

APPLICABILITY: MODES 1 and 2.

ACTION:

With the pressurizer inoperable, be in at least HOT STANDBY with the control rod drive trip breakers open within 6 hours.

### SURVEILLANCE REQUIREMENTS

4.4.4 The pressurizer shall be demonstrated OPERABLE by verifying pressurizer level to be within limits at least once per 12 hours.

REACTOR COOLANT SYSTEM

OPERATIONAL LEAKAGE

LIMITING CONDITION FOR OPERATION

3.4.6.2 Reactor Coolant System leakage shall be limited to:

a. No PRESSURE BOUNDARY LEAKAGE,

b. 1 GPM UNIDENTIFIED LEAKAGE,

c. 1 GPM total primary-to-secondary leakage through steam generators,

d. 10 GPM IDENTIFIED LEAKAGE from the Reactor Coolant System,

e. 10 GPM CONTROLLED LEAKAGE, and

f. 5 GPM leakage from any Reactor Coolant System Pressure Isolation Valve as specified in Table 3.4-2.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With any PRESSURE BOUNDARY LEAKAGE, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With any Reactor Coolant System leakage greater than any one of the above limits, excluding PRESSURE BOUNDARY LEAKAGE, 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 except as permitted by paragraph c below.

c. In the event that integrity of any pressure isolation valve specified in Table 3.4-2 cannot be demonstrated, ~~power operation~~ POWER OPERATION may continue, provided that at least two valves in each high pressure line having a non-functional valve are in and remain in, the mode corresponding to the isolated condition.(a)

d. The provisions of Sections 3.0.4 and 4.0.4 are not applicable for entry into MODES 3 and 4 for the purpose of testing the isolation valves in Table 3.4-2.

---

(a) Motor operated valves shall be placed in the closed position and power supplies deenergized.

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SURVEILLANCE REQUIREMENTS

4.4.6.2.1 Reactor Coolant System leakages shall be demonstrated to be within each of the above limits by:

a. Monitoring the containment atmosphere particulate radioactivity monitor at least once per 12 hours.

b. Monitoring the containment sump inventory and discharge at least once per 12 hours.

c. Measurement of the CONTROLLED LEAKAGE ~~to~~ from the reactor coolant pump seals to the makeup system when the Reactor Coolant System pressure is 2185 ± 20 psig at least once per 31 days.

d. Performance of a Reactor Coolant System water inventory balance at least once per 72 hours during steady state operation.

4.4.6.2.2 Each Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-2 shall be individually demonstrated OPERABLE by verifying leakage testing (or the equivalent) to be within its limit prior to entering MODE 2:

a. After each refueling outage,

b. Whenever the plant has been in COLD SHUTDOWN for 72 hours, or more, and if leakage testing has not been performed in the previous 9 months, and

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

4.4.6.2.3 Whenever integrity of a pressure isolation valve listed in Table 3.4-2 cannot be demonstrated, the integrity of the remaining pressure isolation valve or the integrity of the remaining pressure isolation valve in series with the motor-operated containment isolation valve in each high pressure line having a leaking valve shall be determined and recorded daily. In addition, the position of the closed motor-operated containment isolation valve located in the high pressure piping shall be recorded daily.

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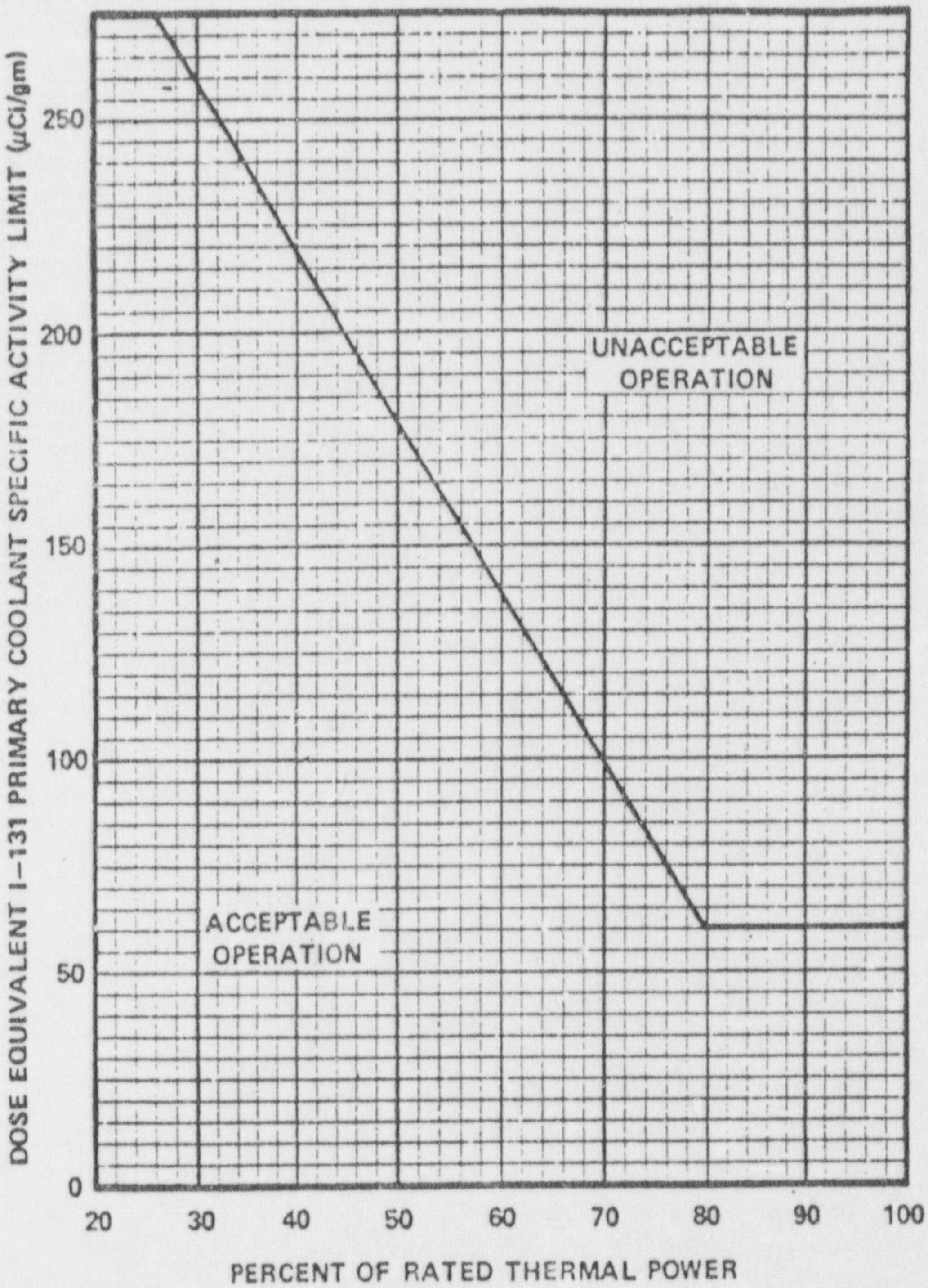


FIGURE 3.4-1

DOSE EQUIVALENT I–131 Primary Coolant Specific Activity Limit Versus Percent of RATED THERMAL POWER with the Primary Coolant Specific Activity > 1.0 μCi/gram ~~Dose Equivalent~~ DOSE EQUIVALENT I-131

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LIMITING CONDITION FOR OPERATION

3.4.11 The following reactor coolant system vent paths shall be operable:

a. Reactor Coolant System Loop 1 with vent path through valves RC 4608A and RC 4608B.

b. Reactor Coolant System Loop 2 with vent path through valves RC 4610A and RC 4610B.

c. Pressurizer; with vent path through EITHER valves RC11 and ~~RC2~~ RC 2A (PORV) OR valves RC 239A and RC 200.

APPLICABILITY: Modes 1, 2 and 3

ACTION:

a. With one of the above vent paths inoperable, restore the inoperable vent path to OPERABLE status within 30 days, or, be in HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 30 hours.

b. With two of the above vent paths inoperable, restore at least one of the inoperable vent paths to OPERABLE status within 72 hours or be in HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 30 hours.

c. With three of the above vent paths inoperable, restore at least two of the inoperable vent paths to OPERABLE status within 72 hours or be in HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 30 hours.

d. The provisions of specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.11 Each reactor coolant system vent path shall be demonstrated OPERABLE at least once per 18 months by:

1. Verifying all manual isolation valves in each vent path are locked in the open position, and

2. Cycling each valve in the vent path through at least one complete cycle of full travel from the control room during COLD SHUTDOWN or REFUELING, and

3. Verifying flow through the reactor coolant vent system vent paths during COLD SHUTDOWN or REFUELING.

EMERGENCY CORE COOLING SYSTEMS

ECCS SUBSYSTEMS - $T_{avg}$ > 280°F

LIMITING CONDITION FOR OPERATION

3.5.2 Two independent ECCS subsystems shall be OPERABLE with each subsystem comprised of:

a. One OPERABLE high pressure injection (HPI) pump,

b. One OPERABLE low pressure injection (LPI) pump,

c. One OPERABLE decay heat cooler, and

d. An OPERABLE flow path capable of taking suction from the borated water storage tank (BWST) on a safety injection signal and manually transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

a. At least once per 31 days 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.

b. At least once per 18 months, or prior to operation after ECCS piping has been drained by verifying that the ECCS piping is full of water by venting the ECCS pump casings and discharge piping high points.

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 containment emergency sump and cause restriction of the pump suction 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 each containment entry when CONTAINMENT INTEGRITY is established.

d. At least once per 18 months by:

1. Verifying that the interlocks:

a) Close DH-11 and DH-12 and deenergize the pressurizer heaters, if either DH-11 or DH-12 is open and a simulated reactor coolant system pressure which is greater than the trip setpoint (<438 psig) is applied. The interlock to close DH-11 and/or DH-12 is not required if the valve is closed and 480 V AC power is disconnected from its motor operators.

b) Prevent the opening of DH-11 and DH-12 when a simulated or actual reactor coolant system pressure which is greater than the trip setpoint (<438 psig) is applied.

2. a) A visual inspection of the containment emergency sump which verifies 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.

b) Verifying that on a Borated Water Storage Tank (BWST) Low-Low Level interlock trip, the BWST Outlet Valve HV-DH7A (HV-DH7B) automatically close in ≤75 seconds after the operator manually pushes the control switch to open the Containment Emergency Sump Valve HV-DH9A (HV-DH9B) which should be verified to open in ≤75 seconds.

3. Verifying a total leak rate ≤ 20 gallons per hour for the LPI system at:

a) Normal operating pressure or hydrostatic test pressure of ≥ 150 psig for those parts of the system downstream of the pump suction isolation valve, and

b) ≥ 45 psig for the piping from the containment emergency sump isolation valve to the pump suction isolation valve.

THIS PAGE PROVIDED FOR INFORMATION ONLY

ADDITIONAL CHANGES PREVIOUSLY PROPOSED BY LETTER
Serial No. 1265 Date 7-31-86

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TABLE 3.6-2

CONTAINMENT ISOLATION VALVES (Continued)

| PENETRATION NUMBER | VALVE NUMBER | FUNCTION | ISOLATION TIME (seconds) |
|---|---|---|---|
| 67 | CV5090 | Hydrogen Dilution System Supply | 60 |
| 68A | SS235A | Pressurizer Quench Tank Sample | 30 |
| 68A | SS235B | Pressurizer Quench Tank Sample | 30 |
| 68B | CV5010B | Containment Air Sample | 15 |
| 68B | CV5011B | Containment Air Sample | 15 |
| 69 | CV5065 | Hydrogen Dilution System Supply | 60 |
| 71B | CV5010A | Containment Air Sample | 15 |
| 71B | CV5011A | Containment Air Sample | 15 |
| 71C | CV1544 | Core Flood Tank N2 Fill | 10 |
| 73B | CV5010C | Containment Air Sample | 15 |
| 73B | CV5011C | Containment Air Sample | 15 |
| 74B | CV5010D | Containment Air Sample | 15 |
| 74B | CV5011D | Containment Air Sample | 15 |
| **B. CONTAINMENT PURGE AND EXHAUST ISOLATION** | | | |
| 33 ## | CV5005 | Containment Vessel Purge Inlet Line | 10 |
| 33 ## | CV5006 | Containment Vessel Purge Inlet Line | 10 |
| 34 ## | CV5007 | Containment Vessel Purge Outlet Line | 10 |
| 34 ## | CV5008 | Containment Vessel Purge Outlet Line | 10 |
| **C. OTHER** | | | |
| 5 # | SW1365 | Containment Air Cooling Units SW Inlet Line | N/A |
| 6 # | SW1368 | Containment Air Cooling Units SW Inlet Line | N/A |
| 7 # | SW1367 | Containment Air Cooling Units SW Inlet Line | N/A |
| 9 # | SW1356 | Containment Air Cooling Units SW Outlet Line | N/A |

ADDITIONAL CHANGES PREVIOUSLY
PROPOSED BY LETTER
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TABLE 3.6-2

CONTAINMENT ISOLATION VALVES (Continued)

| PENETRATION NUMBER | VALVE NUMBER | FUNCTION | ISOLATION TIME (seconds) |
|---|---|---|---|
| 10 # | SW1358 | Containment Air Cooling Units SW ~~Inlet~~ Outlet Line | N/A |
| 11 # | SW1357 | Containment Air Cooling Units SW Outlet Line | N/A |
| 17 | CV343 | Containment Vessel Leak Test Inlet Line | |
| 17 | Flange | Containment Vessel Leak Test Inlet Line (Inside Containment) | N/A |
| 19 # | HP57 | High Pressure Injection Line | N/A |
| 20 # | HP56 | High Pressure Injection Line | N/A |
| 22 # | HP49 | High Pressure Injection Line | N/A |
| 23 # | SF1 | Fuel Transfer Tube | N/A |
| 23 | Flange | Fuel Transfer Tube | N/A |
| 24 # | SF2 | Fuel Transfer Tube | N/A |
| 24 | Flange | Fuel Transfer Tube | N/A |
| *25 | CS33 | Containment Spray Line | N/A |
| *25 | CS17 | Containment Spray Line | N/A |
| 25 | SA536 | Containment Spray Line | N/A |
| 25 | SA532 | Containment Spray Line | N/A |
| *26 | CS36 | Containment Spray Line | N/A |
| *26 | CS18 | Containment Spray Line | N/A |
| 26 | SA535 | Containment Spray Line | N/A |
| 26 | SA533 | Containment Spray Line | N/A |
| 27 # | DH1A | Low Pressure Injection Line | N/A |
| 27 # | DH76 | Low Pressure Injection Line | N/A |
| 28 # | DH1B | Low Pressure Injection Line | N/A |
| 28 # | DH77 | Low Pressure ~~Injection~~ Injection Line | N/A |



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SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying that the 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 1, July 1976, and the system flow rate is 8,000 cfm ±10%.

3. 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 1, July 1976, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 1, July 1976.*

4. Verifying a system flow rate of 8,000 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 1, July 1976, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 1, July 1976.*

d. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is < 6 inches Water Gauge while operating the system at a flow rate of 8,000 cfm ± 10%.

2. Verifying that the system starts automatically on any containment isolation test signal.~~**~~

3. Verifying that the filter cooling bypass valves can be manually opened. ~~**~~

*Representative samples of used activated carbon from the EVS shall pass the laboratory test given in Table 3 for an activated carbon bed depth of 2 inches (i.e., the two 2 inch filter beds in series shall be tested per Test 5.b in Table 2 at a relative humidity of 70% for a methyl iodide penetration of less than 1%). The pre- and post-loading sweep medium temperature shall be 80°C for Test 5.b of Table 2, Regulatory Guide 1.52, Revision 1, July 1976.

~~**Eighteen month surveillance test due in March 1982 delayed until March 31, 1982.~~

PLANT SYSTEMS

## 3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

### LIMITING CONDITION FOR OPERATION

3.7.2.1 The temperature of the secondary coolant in the steam generators shall be > 110°F when the pressure of the secondary coolant in the steam generator is > 237 psig.

APPLICABILITY: At all times.

ACTION:

With the requirements of the above specification not satisfied:

a. Reduce the steam generator pressure to ≤ 237 psig within 30 minutes, and

b. Perform an engineering evaluation to determine the effect of overpressurization on the structural integrity of the steam generator. Determine that the steam generator remains acceptable for continued operation prior to increasing its pressure above 237 psig.

### SURVEILLANCE REQUIREMENTS

4.7.2.1 The temperature of the secondary ~~coolnat~~ coolant in each steam generator shall be determined to be > 110°F at least once per hour when secondary pressure in the steam generator is > 237 psig and $T_{avg}$ is < 200°F.

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## STORAGE POOL VENTILATION

### LIMITING CONDITION FOR OPERATION

3.9.12 Two independent emergency ventilation systems servicing the storage pool area shall be OPERABLE.

APPLICABILITY: Whenever irradiated fuel is in the storage pool.

ACTION:

a. With one emergency ventilation system servicing the storage pool area inoperable, fuel movement within the storage pool or crane operation with loads over the storage pool may proceed provided the OPERABLE emergency ventilation system servicing the storage pool area is in operation and discharging through at least one train of HEPA filters and charcoal adsorbers.

b. With no emergency ventilation system servicing the storage pool area OPERABLE, suspend all operations involving movement of fuel within the storage pool or crane operation with loads over the storage pool until at least one system is restored to OPERABLE status.

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

### SURVEILLANCE REQUIREMENTS

4.9.12.1 The above required emergency ventilation system servicing the storage pool area shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.6.5.1, and at least once per 18 months by verifying that the emergency ventilation system servicing the storage pool area maintains the storage pool area at a negative pressure of $\geq$ 1/8 inches ~~Water Guage~~ relative to the outside atmosphere during system operation. water gauge

4.9.12.2 The normal storage pool ventilation system shall be demonstrated OPERABLE at least once per 18 months by verifying that the system fans stop automatically and that dampers automatically divert flow into the emergency ventilation system on a fuel storage area high radiation test signal.

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SPECIAL TEST EXCEPTION

REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

3.10.3 The limitations of Specification 3.4.1 may be suspended during the performance of ~~startup~~ STARTUP and PHYSICS TESTS provided:

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

b. The reactor trip setpoints on the OPERABLE High Flux channels are set $\leq$ 25% of RATED THERMAL POWER.

APPLICABILITY: MODE 2.

ACTION:

With the THERMAL POWER greater than 5% of RATED THERMAL POWER, immediately open the control rod drive trip breakers.

SURVEILLANCE REQUIREMENTS

4.10.3.1 The THERMAL POWER shall be determined to be < 5% of RATED THERMAL POWER at least once per hour during ~~startup~~ STARTUP and PHYSICS TESTS.

4.10.3.2 Each High Flux Channel shall be subjected to a CHANNEL FUNCTIONAL TEST within 12 hours prior to initiating startup or PHYSICS TESTS.

RADIOACTIVE EFFLUENTS

3/4.11.2 GASEOUS EFFLUENTS

DOSE RATE

LIMITING CONDITION FOR OPERATION

3.11.2.1 The dose rate due to radioactive materials released in gaseous effluents from the site to areas at and beyond the SITE BOUNDARY (see Figure 3.11-2) shall be limited to the following:

a. For noble gases: Less than or equal to 500 mrems/year to the total body and less than or equal to 3000 mrems/year to the skin, and

b. For iodine-131, for tritium, and for all radionuclides in particulate form with half lives greater than 8 days: Less than or equal to 1500 mrems/yr to any organ.

APPLICABILITY: At all times.

ACTION:

a. With the dose ~~RATE~~ rate(s) exceeding the above limits, without delay restore the release rate to within the above limit(s).

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

SURVEILLANCE REQUIREMENTS

4.11.2.1.1 The dose rate due to noble gases in gaseous effluents shall be determined to be within the above limits in accordance with the methodology and parameters in the ODCM.

4.11.2.1.2 The dose rate due to iodine-131, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents shall be determined to be within the above limits in accordance with the methodology and parameters in the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 4.11-2.

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## 3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING

### 3/4.12.1 MONITORING PROGRAM

#### LIMITING CONDITIONS FOR OPERATIONS

3.12.1 The radiological environmental monitoring program shall be conducted as specified in Table 3.12-1.

APPLICABILITY: At all times.

ACTION:

a. With the radiological environmental monitoring program not being conducted as specified in Table 3.12-1, in lieu of a Licensee Event Report, prepare and submit to the Commission, in the Annual Radiological Environmental Operating Report required by Specification 6.9.1.~~11~~10, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence.

b. With the level of radioactivity as the result of plant effluents in an environmental sampling medium at a specified location exceeding the reporting levels of Table 3.12-2 when averaged over any calendar quarter, in lieu of a Licensee Event Report, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce radioactive effluents so that the potential annual dose to A MEMBER OF THE PUBLIC is less than the calendar year limits of Specification 3.11.1.2, 3.11.2.2, and 3.11.2.3. When more than one of the radionuclides in Table 3.12-2 are detected in the sampling medium, this report shall be submitted if:

$$\frac{\text{concentration (1)}}{\text{reporting level (1)}} + \frac{\text{concentration (2)}}{\text{reporting level (2)}} + \ldots \geq 1.0$$

When radionuclides other than those in Table 3.12-2 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose to A MEMBER OF THE PUBLIC is equal to or greater than the calendar year limits of Specifications 3.11.1.2, 3.11.2.2 and 3.11.2.3. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Operating Report.

c. With milk or fresh leafy vegetable samples unavailable from one or more of the sample locations required by Table 3.12-1, identify locations for obtaining replacement samples and if practical add them to the radiological environmental monitoring program within 30 days. The locations from which samples were unavailable may then be deleted from the monitoring program. In lieu of a Licensee Event Report and pursuant to Specification 6.9.1.11, identify the cause of the unavailability of samples and identify the new location(s) for obtaining replacement samples in the next Semiannual Radioactive Effluent Release Report and also include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).

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ACTION: (Continued)

d. With specimens unobtainable due to hazardous conditions, seasonal unavailability, malfunction of automatic sampling equipment and other legitimate reasons, every effort will be made to complete corrective action prior to the end of the next sampling period. All deviations from the sampling schedule will be documented in the Annual Radiological Environmental Operating Report pursuant to Specification 6.~~1~~ 9.1.10.

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

SURVEILLANCE REQUIREMENTS

4.12.1.1 The radiological environmental monitoring samples shall be collected pursuant to Table 3.12-1 from the specific locations given in the table and figure(s) in the ODCM and shall be analyzed pursuant to the requirements of Table 3.12-1, and the detection capabilities required by Table 4.12-1.

4.12.1.2 Cumulative potential dose contributions for the current calendar year from radionuclides detected in environmental samples shall be determined in accordance with the methodology and parameters in the ODCM.

APPLICABILITY

BASES

other specified conditions are satisfied. In this case, this would mean that for one division the emergency power source must be OPERABLE (as must be the components supplied by the emergency power source) and all redundant systems, subsystems, trains, components and devices in the other division must be OPERABLE, or likewise satisfy Specification 3.0.5 (i.e., be capable of performing their design functions and have an emergency power source OPERABLE). In other words, both emergency power sources must be OPERABLE. In other words, both emergency power sources must be OPERABLE and all redundant systems, subsystems, trains, components and devices in both divisions must also be OPERABLE. If these conditions are not satisfied, action is required in accordance with this specification.

In MODES 5 or 6, Specification 3.0.5 is not applicable, and thus the individual ACTION statements for each applicable Limiting Condition for Operation in these MODES must be adhered to.

## BASES

### 3/4.3.1 and 3/4.3.2 REACTOR PROTECTION SYSTEM AND SAFETY SYSTEM INSTRUMENTATION

The OPERABILITY of the RPS, SFAS and SFRCS instrumentation systems ensure that 1) the associated action and/or trip will be initiated when the parameter monitored by each channel or combination thereof exceeds its setpoint, 2) the specified coincidence logic is maintained, 3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and 4) sufficient system functional capability is available for RPS, SFAS and SFRCS purposes from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundance and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability.

The measurement of response time at the specified frequencies provides assurance that the RPS, SFAS, and SFRCS 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 demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

An SFRCS channel consists of 1) the sensing device(s), 2) associated logic and output relays (including Isolation of Main Feedwater Non Essential Valves and Turbine Trip), and 3) power sources.

Safety-grade anticipatory reactor trip is initiated by a turbine trip (above 25 percent of RATED THERMAL POWER) or trip of both main feedwater pump turbines. This anticipatory trip will operate in advance of the reactor coolant system high pressure reactor trip to reduce the peak reactor coolant system pressure and thus reduce challenges to the power operated relief valve. This anticipatory reactor trip system was installed to satisfy Item II.K.2.10 of NUREG-0737.

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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 0.5 psi and 2) the containment peak pressure does not exceed the design pressure of 40 psig during LOCA conditions.

The maximum peak pressure obtained from a LOCA event is 37 psig. The limit of 1 psig for initial positive containment pressure will limit the total pressure to 38 psig which is less than the design pressure and is consistent with the safety analyses.

3/4.6.1.5 AIR TEMPERATURE

The limitations on containment average air temperature ensure than the overall containment average air temperature does not exceed the initial temperature condition assumed in the accident analysis for a LOCA.

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 vessel will withstand the maximum pressure of 38 psig in the event of a LOCA. A visual inspection in conjunction with Type A leakage tests is sufficient to demonstrate this capability.

3/4.6.1.7 CONTAINMENT VENTILATION SYSTEM

The limitation on use of the Containment Purge and Exhaust System limits the time this system may be in operation with the reactor coolant system temperature above 200°F. This restriction minimizes the time that a direct open path would exist from the containment atmosphere to the outside atmosphere and consequently reduces the probability that an accident dose would exceed 10 CFR 100 guideline values in the event of a LOCA ~~occuring~~ occurring coincident with purge system operation. The use of this system is therefore restricted to non-routine usage not to exceed 90 hours in any consecutive 365 day period which is equivalent to approximately 1% of the total possible yearly unit operating time.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM

The OPERABILITY of the containment spray system ensures that containment depressurization and cooling capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment

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## 3/4.6.5.2 SHIELD BUILDING INTEGRITY

SHIELDING BUILDING INTEGRITY ensures that the release of radioactive material from the containment vessel will be restricted to those leakage paths and associated leak rates assumed in the safety analysis. The closure of the airtight doors and blowout panels listed in Table 4.6-1 ensure that the Emergency Ventilation System (EVS) can provide a negative pressure between 0.25 to 1.5 inches water ~~gage~~ gauge within the annulus between the shield building and containment vessel and within the interconnecting mechanical penetration rooms after a loss-of-coolant accident. This restriction, in conjuction with the operation of the EVS, will limit the site boundary radiation doses to within the limits of 10 CFR 100 during accident conditions.

## 3/4.6.5.3 SHIELD BUILDING STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment shield building will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to provide 1) protection for the steel vessel from external missiles, 2) radiation shielding in the event of a LOCA, and 3) an annulus surrounding the steel vessel that can be maintained at a negative pressure during accident conditions.

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CONTAMINATION

## 3/4.7.8 SEALED SOURCE ~~CONTAIMINATION~~

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from by product, source, and special nuclear material sources will not exceed allowable intake values.

## 3/4.7.9 FIRE SUPPRESSION SYSTEMS

The OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring ~~occuring~~ in any portion of the facility where safety related equipment is located. The fire suppression system consists of the water system, spray and/or sprinklers, and fire hose stations. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety related equipment and is a major element in the facility fire protection program.

In the event that portions of the fire suppression systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service.

In the event the fire suppression water system becomes inoperable, immediate corrective measures must be taken since this system provides the major fire suppression capability of the plant. The requirement for a twenty-four hour report to the Commission provides for prompt evaluation of the acceptability of the corrective measures to provide adequate fire suppression capability for the continued protection of the nuclear plant.

## 3/4.7.10 PENETRATION FIRE BARRIERS

The functional integrity of the penetration fire barriers ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire rapidly involving several areas of the facility prior to detection and extinguishment. The penetration fire barriers are a passive element in the facility fire protection program and are subject to periodic inspections.

During periods of time when the barriers are not functional, a continuous fire watch is required to be maintained in the vicinity of the affected barrier until the barrier is restored to functional status.

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VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is 12,110 ± 200 cubic feet at a nominal $T_{avg}$ of 525°F.

## 5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

## 5.6 FUEL STORAGE

CRITICALITY

5.6.1.1 The spent fuel storage racks are designed and shall be maintained with:

a. A $K_{eff}$ equivalent to less than or equal to 0.95 when flooded with ~~uborated~~ unborated water, which includes a conservative allowance of 1% delta k/k for calculation uncertainty.

b. A rectangular array of stainless steel cells spaced 12 31/32 inches on centers in one direction and 13 3/16 inches on centers in the other direction. Fuel assemblies stored in the spent fuel pool shall be placed in a stainless steel cell of 0.125 inches nominal thickness or in a failed fuel container.

5.6.1.2 The new fuel storage racks are designed and shall be maintained with:

a. A $K_{eff}$ equivalent to less than or equal to 0.95 when flooded with unborated water, which includes a conservative allowance of 1% delta k/k for uncertainties as described in Section 9.1 of the FSAR.

b. A nominal 21 inch center-to-center distance between fuel assemblies placed in the storage racks.

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below 9 feet above the top of the fuel storage racks.