TABLE 2.2-1

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
10. Thermal Margin/Low Pressure (1)		
Four Reactor Coolant Pumps Operating	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-3 and 2.2-4 (4).	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-3 and 2.2-4(4).
11. Loss of Turbine--Hydraulic Fluid (3) Pressure - Low	≥ 500 psig	≥ 500 psig

TABLE NOTATION

≥

(1) Trip may be bypassed below 5% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is ± 5% of RATED THERMAL POWER.

(2) Trip may be manually bypassed below 780 psia when all CEAs are fully inserted; bypass shall be automatically removed at or above 780 psia.

(3) Trip may be bypassed below 15% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER IS ≥ 15% of RATED THERMAL POWER.

(4) Calculations of the trip setpoint includes measurements, calculational and processor uncertainties, and dynamic allowances.

(5) Each of four channels actuate on the auctioneered output of two transmitters, one from each steam generator.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION	
7. CONTAINMENT PURGE VALVE ISOLATION						61
a. Containment Radiation - High	Add			5, 6		61
Gaseous Monitor	2 1(d)	1(d)	1		3	
Particulate Monitor	2 1(d)	1(d)	1		3	
8. LOSS OF POWER						
a. 4.16 kv Emergency Bus Undervoltage (Undervoltage relays) - level one	4/bus	2/Bus	3/bus	1, 2, 3	2	
b. 4.16 kv Emergency Bus Undervoltage (Undervoltage relays) - level two	4/Bus	2/Bus	3/Bus	1, 2, 3	2	

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TABLE 3.3-3 (Continued)

TABLE NOTATION

(a) Trip function may be bypassed when pressurizer pressure is < 1750 psia; bypass shall be automatically removed when pressurizer pressure is $\geq$ 1750 psia.

(b) An SIAS signal is first necessary to enable CSAS logic.

(c) Trip function may be bypassed below 600 psia; bypass shall be automatically removed at or above 600 psia.

DELETED (d) Each channel has two sensors, high radiation level on either sensor will initiate containment purge valve isolation.

(e) Trip may be bypassed during testing pursuant to Special Test Exception 3.10.3.

ACTION STATEMENTS

ACTION 1 - 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 COLD SHUTDOWN within the next 36 hours.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels and with the pressurizer pressure:

a. < 1750 psia; immediately place the inoperable channel in the bypassed condition; restore the inoperable channel to OPERABLE status prior to increasing the pressurizer pressure above 1750 psia.

b. $\geq$ 1750 psia, operation may continue with the inoperable channel in the bypassed condition, provided the following conditions are satisfied:

1. All functional units receiving an input from the bypassed channel are also placed in the bypassed condition.

2. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be removed from service for up to 2 hours for surveillance testing per Specification 4.3.2.1 provided one of the inoperable channels is placed in the tripped condition.

TABLE 3.3-3 (Continued)

ACTION 3 - With less than the minimum channels OPERABLE ~~one or more channels inoperable, operation may continue provided~~ the containment purge valves are to be maintained closed.

ACTION 4 - With the number of OPERABLE channels one less than the Total Number of Channels and with the pressurizer pressure:

a. < 1750 psia: immediately place the inoperable channel in the bypassed condition; restore the inoperable channel to OPERABLE status prior to increasing the pressurizer pressure above 1750 psia.

b. ≥ 1750 psia, operation may continue with the inoperable channel in the bypassed condition, provided the following condition is satisfied:

1. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be removed from service for up to 2 hours for surveillance testing per Specification 4.3.2.1 provided BOTH of the inoperable channels are placed in the bypassed condition.

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
3. Containment Pressure - High	
a. Safety Injection (ECCS)	
1) High Pressure Safety Injection	≤ 25.0*/5.0**
2) Low Pressure Safety Injection	≤ 45.0*/5.0**
3) Charging Pumps	≤ 35.0*/35.0**
4) Containment Air Recirculation System	≤ 26.0*/15.0**
b. Containment Isolation	≤ 7.5
c. Enclosure Building Filtration System	≤ 45.0*/45.0**
d. Main Steam Isolation	≤ 6.9
e. Feedwater Isolation	≤ 14
4. Containment Pressure--High-High	
a. Containment Spray	≤ 35.6*(1)/16.0**(1)
5. Containment Radiation-High	
a. Containment Purge Valves Isolation	≤ Counting period plus 7.5
6. Steam Generator Pressure-Low	
a. Main Steam Isolation	≤ 6.9
b. Feedwater Isolation	≤ 14
7. Refueling Water Storage Tank-Low	
a. Containment Sump Recirculation	≤ 120
8. Steam Generator Level-Low	
a. Auxiliary Feedwater System(3)	< 240*/240**(2) ≤ 240

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

TABLE NOTATION

* Diesel generator starting and sequence loading delays included.

** Diesel generator starting and sequence loading delays not included. Offsite power available.

(1) Header fill time not included.

(2) Includes 3-minute time delay. Deleted

(3) For Cycle 12 only, OPERABILITY of the auxiliary feedwater (AFW) automatic initiation logic will rely on operator action to ensure successful initiation of AFW. Prior to startup for Cycle 13, modifications to the automatic initiation logic for AFW will be implemented to eliminate the reliance on operator action.

Table 3.3-8

METEOROLOGICAL MONITORING INSTRUMENTATION

INSTRUMENT	LOCATION	INSTRUMENT MINIMUM ACCURACY	MINIMUM CHANNELS OPERABLE
1. WIND SPEED			
	a. Nominal Elev. 142 ft.	± 0.22 m/sec*	1
	b. Nominal Elev. 374 ft.	± 0.22 m/sec*	1
2. WIND DIRECTION			
	a. Nominal Elev. 142 ft.	± 5°	1
	b. Nominal Elev. 374 ft.	± 5°	1
3. AIR TEMPERATURE - DELTA T			
	a. Nominal Elev. 142 ft.	± 0.18°F	1
	b. Nominal Elev. ~~347~~ 374 ft.	± 0.18°F	1

*Starting speed of anemometer shall be < 0.45 m/sec.

REACTOR COOLANT SYSTEM

SPECIFIC ACTIVITY

LIMITING CONDITION FOR OPERATION

3.4.8 The specific activity of the primary coolant shall be limited to:

a. ≤ 1.0 μCi/gram DOSE EQUIVALENT I-131, and

b. ≤ 100/Ē μCi/gram.

Specification 3.0.4 is not applicable in accordance with the ACTION statements.

APPLICABILITY: MODES 1, 2, 3, 4, and 5.

ACTION:

MODES 1, 2, and 3*:

a. With the specific activity of the primary coolant > 1.0 μCi/gram DOSE EQUIVALENT I-131 but within the allowable limit (below and to the left of the line) shown on Figure 3.4-1, operation may continue for up to 48 hours. ~~Entry into an OPERATIONAL MODE or other specified condition is permitted pursuant to Specification 3.0.4 when subject to this ACTION statement.~~ e

b. With the specific activity of the primary coolant > 1.0 μCi/gram DOSE EQUIVALENT I-131 for more than 48 hours during one continuous time interval or exceeding the limit line shown on Figure 3.4-1, be in HOT STANDBY with T_{avg} < 515°F within 4 hours.

c. With the specific activity of the primary coolant > 100/Ē μCi/gram, be in HOT STANDBY with T_{avg} < 515°F within 4 hours.

MODES 1, 2, 3, 4 and 5:

d. With the specific activity of the primary coolant > 1.0 μCi/gram DOSE EQUIVALENT I-131 or > 100/Ē μCi/gram, perform the sampling and analysis requirements of item 4 a) of Table 4.4-2 until the specific activity of the primary coolant is restored to within its limits.

*With T_{avg} ≥ 515°F.

REFUELING OPERATIONS

CONTAINMENT RADIATION MONITORING

LIMITING CONDITION FOR OPERATION

A MINIMUM OF ONE CHANNEL EACH OF GASEOUS AND PARTICULATE

3.9.9 ~~The containment area radiation and~~ airborne radioactivity monitors which initiate containment purge valve isolation shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTION:

With less than the above required instrumentation systems OPERABLE, either suspend all operations involving CORE ALTERATIONS and movement of fuel within the containment building or close all penetrations providing direct access from the containment atmosphere to the outside atmosphere, then CORE ALTERATIONS and/or fuel movement within the containment building may proceed for up to 7 days subject to ACTION requirements of Specification 3.3.3.1, as applicable.

SURVEILLANCE REQUIREMENTS

4.9.9.1 The specified instrumentation shall be demonstrated OPERABLE by performance of the surveillance requirements of Specification 4.3.3.1.

4.9.9.2 All penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be verified closed at least once per 12 hours during CORE ALTERATIONS or fuel movement within the containment building when less than the above required instrumentation systems are OPERABLE.

3/4.2 POWER DISTRIBUTION LIMITS

BASES

3/4.2.1 LINEAR HEAT RATE

The limitation on linear heat rate ensures that in the event of a LOCA, the peak temperature of the fuel cladding will not exceed 2200°F.

Either of the two core power distribution monitoring systems, the Excore Detector Monitoring System and the Incore Detector Monitoring System, provide adequate monitoring of the core power distribution and are capable of verifying that the linear heat rate does not exceed its limits. The Excore Detector Monitoring System performs this function by continuously monitoring the AXIAL SHAPE INDEX with two OPERABLE excore neutron flux detectors and verifying that the AXIAL SHAPE INDEX is maintained within the allowable limits ~~of Figure 3.2-2~~ specified in the CORE OPERATING LIMITS REPORT using the Power Ratio Recorder. The power dependent limits of the Power Ratio Recorder are less than or equal to the limits ~~of Figure 3.2-2~~ specified in the CORE OPERATING LIMITS REPORT. In conjunction with the use of the excore monitoring system and in establishing the AXIAL SHAPE INDEX limits, the following assumptions are made: 1) the CEA insertion limits of Specifications ~~3.1.3.2,~~ 3.1.3.5 and 3.1.3.6 are satisfied, ~~2) the flux peaking augmentation factors are as shown in Figure 4.2-1~~, 2~~3~~) the AZIMUTHAL POWER TILT restrictions of Specification 3.2.4 are satisfied, and 3~~4~~) the TOTAL UNRODDED INTEGRATED RADIAL PEAKING FACTOR does not exceed the limits of Specification 3.2.3.

The Incore Detector Monitoring System continuously provides a direct measure of the peaking factors and the alarms which have been established for the individual incore detector segments ensure that the peak linear heat rates will be maintained within the allowable limits ~~of Figure 3.2-1~~ specified in the CORE OPERATING LIMITS REPORT. The setpoints for these alarms include allowances, set in the conservative directions, for 1) flux peaking augmentation factors ~~as shown in Figure 4.2-1~~, 2) a measurement-calculational uncertainty factor ~~of 1.07~~, 3) an engineering uncertainty factor ~~of 1.03~~, 4) an allowance ~~of 1.01~~ for axial fuel densification and thermal expansion, and 5) a THERMAL POWER measurement uncertainty factor ~~of 1.02~~ specified in the CORE OPERATING LIMITS REPORT. Note the Items (1) and (4) above are only applicable to fuel batches "A" through "L".

3/4.2.3 and 3/4.2.4 TOTAL UNRODDED INTEGRATED RADIAL PEAKING FACTORS F_r^T AND AZIMUTHAL POWER TILT - T_q

The limitations on F_r^T and T_q are provided to 1) ensure that the assumptions used in the analysis for establishing the Linear Heat Rate and Local power Density - High LCOs and LSSS setpoints remain valid during operation at the various allowable CEA group insertion limits, and, 2) ensure that the assumptions used in the analysis establishing the DNB Margin LCO, and Thermal Margin/Low Pressure LSSS setpoints remain valid during operation at the various allowable CEA group insertion limits. If F_r^T or T_q exceed their basic limitations, operation may continue under the additional restrictions imposed by the ACTION statements since these additional restrictions provide adequate provisions to assure that the assumptions used in establishing the Linear Heat Rate, Thermal Margin/Low Pressure and Local Power Density - High LCOs and LSSS

evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion. Inservice inspection of steam generator tubing also provides a means of characterizing the nature and cause of any tube degradation so that corrective measures can be taken.

The plant is expected to be operated in a manner such that the secondary coolant will be maintained within those chemistry limits found to result in negligible corrosion of the steam generator tubes. If the secondary coolant chemistry is not maintained within these limits, localized corrosion may likely result in stress corrosion cracking.

The extent of cracking during plant operation would be limited by the limitation of steam generator tube leakage between the primary coolant system and the secondary coolant system (primary-to-secondary leakage = 0.10 GPM, per steam generator). Cracks having a primary-to-secondary leakage less than this limit during operation will have an adequate margin of safety to withstand the loads imposed during normal operation and by postulated accidents. Operating plants have demonstrated that primary-to-secondary leakage of 0.10 gallon per minute can readily be detected by radiation monitors of steam generator blowdown. Leakage in excess of this limit will require plant shutdown and an unscheduled inspection, during which the leaking tubes will be located and plugged.

Wastage-type defects are unlikely with proper chemistry treatment of the secondary coolant. However, even if a defect should develop in service, it will be found during scheduled inservice steam generator tube examinations. Plugging or sleeving will be required for all tubes with imperfections exceeding the plugging limit of 40% of the tube nominal wall thickness. Sleeving repair will be limited to those steam generator tubes with a defect between the tube sheet and the first eggcrate support. Tubes containing sleeves with imperfections exceeding the plugging limit will be plugged. Steam generator tube inspections of operating plants have demonstrated the capability to reliably detect degradation that has penetrated 20% of the original tube wall thickness.

Whenever the results of any steam generator tubing inservice inspection fall into Category C-3, these results will be immediately reported to the Commission pursuant to 10 CFR 50.72. Such cases will be considered by the Commission on a case-by-case basis and may result in a requirement for analysis, laboratory examinations, tests, additional eddy-current inspection, and revision of the Technical Specifications, if necessary.

3/4.4.7 CHEMISTRY

The limitations on Reactor Coolant System contaminants ensure that corrosion of the Reactor Coolant System is minimized and reduce the potential for Reactor Coolant System leakage or failure due to stress corrosion. Maintaining the concentrations of the contaminants within the Steady State Limits shown on Table 3.4-1 provides adequate corrosion protection to ensure the structural integrity of the Reactor Coolant System over the life of the plant. The associated effects of exceeding the oxygen, chloride and fluoride limits are time and temperature dependent. Corrosion studies show that operation may be continued with contaminant concentration levels in excess of the Steady State Limits, up to the Transient Limits, for the specified limited time intervals without having a significant effect on the structural integrity of the Reactor Coolant System. The time interval permitting continued operation within the restrictions of the Transient Limits provides time for taking corrective actions to restore the contaminant concentrations to within the Steady State Limits.

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

3/4.4.8 SPECIFIC ACTIVITY

The limitations on the specific activity of the primary coolant ensure that the resulting 2 hour doses at the site boundary will not exceed an appropriately small fraction of Part 100 limits following a steam generator tube rupture accident. ~~in conjunction with an assumed steady state primary-to-secondary steam generator leakage rate of 1.0 GPM and a concurrent loss of offsite electrical power.~~

The ACTION statement permitting POWER OPERATION to continue for limited time periods with the primary coolant's specific activity > 1.0 μCi/gram DOSE EQUIVALENT I-131, but within the allowable limit shown on Figure 3.4-1, accommodates possible iodine spiking phenomenon which may occur following changes in THERMAL POWER.

RADIOACTIVE EFFLUENTS

BASES

3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 DOSE RATE

This specification is provided to ensure that the dose rate at anytime from gaseous effluents from all units on the site will be within the annual dose limits of 10 CFR Part 20 for all areas offsite. The annual dose limits are the doses associated with the concentrations of 10 CFR Part 20, Appendix B, Table II. These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of an individual offsite to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 (10 CFR Part 20.106(b)). For individuals who may at times be within the site boundary, the occupancy of the individual will be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the site boundary. The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to an individual at or beyond the site boundary to ≤ 500 mrem/year to the total body or to ≤ 3000 mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid OR ANY OTHER ORGAN dose rate above background to ~~an infant~~ A CHILD via the ~~cow-milk-infant~~ INHALATION pathway to ≤ 1500 mrem/year. ~~for the nearest cow to the plant.~~

3/4.11.2.2 DOSE, NOBLE GASES

This specification is provided to implement the requirements of Sections II.B, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Condition for Operation implements the guides set forth in Section II.B of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in gaseous effluents will be kept "as low as is reasonably achievable." The Surveillance Requirements implement the requirements in Section III.A of Appendix I that conform with the guides of Appendix I to be shown by calculational procedures based on models and data such that the actual exposure of an individual through the appropriate pathways is unlikely to be substantially underestimated. The dose calculations established in the ODCM for calculating the doses due to the actual release rates of radioactive noble gases in gaseous effluents will be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977 and Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled-Reactors," Revision 1, July 1977.

The ODCM equations provided for determining the air doses at the site boundary are based upon utilizing successively more realistic dose calculational methodologies. More realistic dose calculational methods are

Docket No. 50-336
B15349

Attachment 4

Millstone Nuclear Power Station, Unit No. 2

Proposed Technical Specifications Revision
Administrative Changes to Technical Specifications

Retyped Technical Specifications

September 1995

TABLE 2.2-1

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
10. Thermal Margin/Low Pressure (1)		
Four Reactor Coolant Pumps Operating	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-3 and 2.2-4 (4).	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-3 and 2.2-4 (4).
11. Loss of Turbine--Hydraulic Fluid (3) Pressure - Low	$\geq$ 500 psig	$\geq$ 500 psig

TABLE NOTATION

(1) Trip may be bypassed below 5% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is $\geq$ 5% of RATED THERMAL POWER.

(2) Trip may be manually bypassed below 780 psia when all CEAs are fully inserted; bypass shall be automatically removed at or above 780 psia.

(3) Trip may be bypassed below 15% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER IS $\geq$ 15% of RATED THERMAL POWER.

(4) Calculations of the trip setpoint includes measurements, calculational and processor uncertainties, and dynamic allowances.

(5) Each of four channels actuate on the auctioneered output of two transmitters, one from each steram generator.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
7. CONTAINMENT PURGE VALVE ISOLATION					
a. Containment Radiation-High				5, 6	
Gaseous Monitor	2	1	1		3
Particulate Monitor	2	1	1		3
8. LOSS OF POWER					
a. 4.16 kv Emergency Bus Undervoltage (Undervoltage relays) - level one	4/bus	2/Bus	3/bus	1, 2, 3	2
b. 4.16 kv Emergency Bus Undervoltage (Undervoltage relays) - level two	4/Bus	2/Bus	3/Bus	1, 2, 3	2

TABLE 3.3-3 (Continued)

TABLE NOTATION

(a) Trip function may be bypassed when pressurizer pressure is < 1750 psia; bypass shall be automatically removed when pressurizer pressure is $\geq$ 1750 psia.

(b) An SIAS signal is first necessary to enable CSAS logic.

(c) Trip function may be bypassed below 600 psia; bypass shall be automatically removed at or above 600 psia.

(d) Deleted

(e) Trip may be bypassed during testing pursuant to Special Test Exception 3.10.3.

ACTION STATEMENTS

ACTION 1 - 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 COLD SHUTDOWN within the next 36 hours.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels and with the pressurizer pressure:

a. < 1750 psia; immediately place the inoperable channel in the bypassed condition; restore the inoperable channel to OPERABLE status prior to increasing the pressurizer pressure above 1750 psia.

b. $\geq$ 1750 psia, operation may continue with the inoperable channel in the bypassed condition, provided the following conditions are satisfied:

1. All functional units receiving an input from the bypassed channel are also placed in the bypassed condition.

2. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be removed from service for up to 2 hours for surveillance testing per Specification 4.3.2.1 provided one of the inoperable channels is placed in the tripped condition.

TABLE 3.3-3 (Continued)

ACTION 3 - With less than the minimum channels OPERABLE the containment purge valves are to be maintained closed.

ACTION 4 - With the number of OPERABLE channels one less than the Total Number of Channels and with the pressurizer pressure:

a. < 1750 psia: immediately place the inoperable channel in the bypassed condition; restore the inoperable channel to OPERABLE status prior to increasing the pressurizer pressure above 1750 psia.

b. $\geq$ 1750 psia, operation may continue with the inoperable channel in the bypassed condition, provided the following condition is satisfied:

1. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be removed from service for up to 2 hours for surveillance testing per Specification 4.3.2.1 provided BOTH of the inoperable channels are placed in the bypassed condition.

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
3. Containment Pressure - High	
a. Safety Injection (ECCS)	
1) High Pressure Safety Injection	≤ 25.0*/5.0**
2) Low Pressure Safety Injection	≤ 45.0*/5.0**
3) Charging Pumps	≤ 35.0*/35.0**
4) Containment Air Recirculation System	≤ 26.0*/15.0**
b. Containment Isolation	≤ 7.5
c. Enclosure Building Filtration System	≤ 45.0*/45.0**
d. Main Steam Isolation	≤ 6.9
e. Feedwater Isolation	≤ 14
4. Containment Pressure--High-High	
a. Containment Spray	≤ 35.6*(1)/16.0**(1)
5. Containment Radiation-High	
a. Containment Purge Valves Isolation	≤ Counting period plus 7.5
6. Steam Generator Pressure-Low	
a. Main Steam Isolation	≤ 6.9
b. Feedwater Isolation	≤ 14
7. Refueling Water Storage Tank-Low	
a. Containment Sump Recirculation	≤ 120
8. Steam Generator Level-Low	
a. Auxiliary Feedwater System(3)	≤ 240

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

TABLE NOTATION

* Diesel generator starting and sequence loading delays included.

** Diesel generator starting and sequence loading delays not included. Offsite power available.

(1) Header fill time not included.

(2) Deleted

(3) For Cycle 12 only, OPERABILITY of the auxiliary feedwater (AFW) automatic initiation logic will rely on operator action to ensure successful initiation of AFW. Prior to startup for Cycle 13, modifications to the automatic initiation logic for AFW will be implemented to eliminate the reliance on operator action.

Table 3.3-8

METEOROLOGICAL MONITORING INSTRUMENTATION

INSTRUMENT	LOCATION	INSTRUMENT MINIMUM ACCURACY	MINIMUM CHANNELS OPERABLE
1. WIND SPEED			
	a. Nominal Elev. 142 ft.	± 0.22 m/sec*	1
	b. Nominal Elev. 374 ft.	± 0.22 m/sec*	1
2. WIND DIRECTION			
	a. Nominal Elev. 142 ft.	± 5°	1
	b. Nominal Elev. 374 ft.	± 5°	1
3. AIR TEMPERATURE - DELTA T			
	a. Nominal Elev. 142 ft.	± 0.18°F	1
	b. Nominal Elev. 374 ft.	± 0.18°F	1

* Starting speed of anemometer shall be < 0.45 m/sec.

SPECIFIC ACTIVITY

LIMITING CONDITION FOR OPERATION

3.4.8 The specific activity of the primary coolant shall be limited to:

a. $\leq$ 1.0 μCi/gram DOSE EQUIVALENT I-131, and

b. $\leq$ 100/$\bar{E}$ μCi/gram.

APPLICABILITY: MODES 1, 2, 3, 4, and 5.

ACTION:

MODES 1, 2, and 3*:

a. With the specific activity of the primary coolant > 1.0 μCi/gram DOSE EQUIVALENT I-131 but within the allowable limit (below and to the left of the line) shown on Figure 3.4-1, operation may continue for up to 48 hours. Specification 3.0.4 is not applicable. Entry into an OPERATIONAL MODE or other specified condition is permitted in accordance with the ACTION statements.

b. With the specific activity of the primary coolant > 1.0 μCi/gram DOSE EQUIVALENT I-131 for more than 48 hours during one continuous time interval or exceeding the limit line shown on Figure 3.4-1, be in HOT STANDBY with T_{avg} < 515°F within 4 hours.

c. With the specific activity of the primary coolant > 100/$\bar{E}$ μCi/gram, be in HOT STANDBY with T_{avg} < 515°F within 4 hours.

MODES 1, 2, 3, 4 and 5:

d. With the specific activity of the primary coolant > 1.0 μCi/gram DOSE EQUIVALENT I-131 or > 100/$\bar{E}$ μCi/gram, perform the sampling and analysis requirements of item 4 a) of Table 4.4-2 until the specific activity of the primary coolant is restored to within its limits.

---

*With $T_{avg} \geq$ 515°F.

CONTAINMENT RADIATION MONITORING

LIMITING CONDITION FOR OPERATION

3.9.9 A minimum of one channel each of gaseous and particulate airborne radioactivity monitors which initiate containment purge valve isolation shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTION:

With less than the above required instrumentation systems OPERABLE, either suspend all operations involving CORE ALTERATIONS and movement of fuel within the containment building or close all penetrations providing direct access from the containment atmosphere to the outside atmosphere, then CORE ALTERATIONS and/or fuel movement within the containment building may proceed for up to 7 days subject to ACTION requirements of Specification 3.3.3.1, as applicable.

SURVEILLANCE REQUIREMENTS

4.9.9.1 The specified instrumentation shall be demonstrated OPERABLE by performance of the surveillance requirements of Specification 4.3.3.1.

4.9.9.2 All penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be verified closed at least once per 12 hours during CORE ALTERATIONS or fuel movement within the containment building when less than the above required instrumentation systems are OPERABLE.

3/4.2.1 LINEAR HEAT RATE

The limitation on linear heat rate ensures that in the event of a LOCA, the peak temperature of the fuel cladding will not exceed 2200°F.

Either of the two core power distribution monitoring systems, the Excore Detector Monitoring System and the Incore Detector Monitoring System, provide adequate monitoring of the core power distribution and are capable of verifying that the linear heat rate does not exceed its limits. The Excore Detector Monitoring System performs this function by continuously monitoring the AXIAL SHAPE INDEX with two OPERABLE excore neutron flux detectors and verifying that the AXIAL SHAPE INDEX is maintained within the allowable limits specified in the Core Operating Limits Report using the Power Ratio Recorder. The power dependent limits of the Power Ratio Recorder are less than or equal to the limits specified in the Core Operating Limits Report. In conjunction with the use of the excore monitoring system and in establishing the AXIAL SHAPE INDEX limits, the following assumptions are made: 1) the CEA insertion limits of Specifications 3.1.3.5 and 3.1.3.6 are satisfied, 2) the AZIMUTHAL POWER TILT restrictions of Specification 3.2.4 are satisfied, and 3) the TOTAL UNRODDED INTEGRATED RADIAL PEAKING FACTOR does not exceed the limits of Specification 3.2.3.

The Incore Detector Monitoring System continuously provides a direct measure of the peaking factors and the alarms which have been established for the individual incore detector segments ensure that the peak linear heat rates will be maintained within the allowable limits specified in the Core Operating Limits Report. The setpoints for these alarms include allowances, set in the conservative directions, for 1) a flux peaking augmentation factor, 2) a measurement-calculational uncertainty factor, 3) an engineering uncertainty factor, 4) an allowance for axial fuel densification and thermal expansion, and 5) a THERMAL POWER measurement uncertainty factor specified in the Core Operating Limits Report. Note the Items (1) and (4) above are only applicable to fuel batches "A" through "L".

3/4.2.3 and 3/4.2.4 TOTAL UNRODDED INTEGRATED RADIAL PEAKING FACTORS F_r^T AND AZIMUTHAL POWER TILT - T_q

The limitations on F_r^T and T_q are provided to 1) ensure that the assumptions used in the analysis for establishing the Linear Heat Rate and Local power Density - High LCOs and LSSS setpoints remain valid during operation at the various allowable CEA group insertion limits, and, 2) ensure that the assumptions used in the analysis establishing the DNB Margin LCO, and Thermal Margin/Low Pressure LSSS setpoints remain valid during operation at the various allowable CEA group insertion limits. If F_r^T or T_q exceed their basic limitations, operation may continue under the additional restrictions imposed by the ACTION statements since these additional restrictions provide adequate provisions to assure that the assumptions used in establishing the Linear Heat Rate, Thermal Margin/Low Pressure and Local Power Density - High LCOs and LSSS

evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion. Inservice inspection of steam generator tubing also provides a means of characterizing the nature and cause of any tube degradation so that corrective measures can be taken.

The plant is expected to be operated in a manner such that the secondary coolant will be maintained within those chemistry limits found to result in negligible corrosion of the steam generator tubes. If the secondary coolant chemistry is not maintained within these limits, localized corrosion may likely result in stress corrosion cracking.

The extent of cracking during plant operation would be limited by the limitation of steam generator tube leakage between the primary coolant system and the secondary coolant system (primary-to-secondary leakage = 0.10 GPM, per steam generator). Cracks having a primary-to-secondary leakage less than this limit during operation will have an adequate margin of safety to withstand the loads imposed during normal operation and by postulated accidents. Operating plants have demonstrated that primary-to-secondary leakage of 0.10 gallon per minute can readily be detected by radiation monitors of steam generator blowdown. Leakage in excess of this limit will require plant shutdown and an unscheduled inspection, during which the leaking tubes will be located and plugged.

Wastage-type defects are unlikely with proper chemistry treatment of the secondary coolant. However, even if a defect should develop in service, it will be found during scheduled inservice steam generator tube examinations. Plugging or sleeving will be required for all tubes with imperfections exceeding the plugging limit of 40% of the tube nominal wall thickness. Sleeving repair will be limited to those steam generator tubes with a defect between the tube sheet and the first eggcrate support. Tubes containing sleeves with imperfections exceeding the plugging limit will be plugged. Steam generator tube inspections of operating plants have demonstrated the capability to reliably detect degradation that has penetrated 20% of the original tube wall thickness.

Whenever the results of any steam generator tubing inservice inspection fall into Category C-3, these results will be immediately reported to the Commission pursuant to 10 CFR 50.72. Such cases will be considered by the Commission on a case-by-case basis and may result in a requirement for analysis, laboratory examinations, tests, additional eddy-current inspection, and revision of the Technical Specifications, if necessary.

3/4.4.7 CHEMISTRY

The limitations on Reactor Coolant System contaminants ensure that corrosion of the Reactor Coolant System is minimized and reduce the potential for Reactor Coolant System leakage or failure due to stress corrosion. Maintaining the concentrations of the contaminants within the Steady State Limits shown on Table 3.4-1 provides adequate corrosion protection to ensure the structural integrity of the Reactor Coolant System over the life of the plant. The associated effects of exceeding the oxygen, chloride and fluoride limits are time and temperature dependent. Corrosion studies show that operation may be continued with contaminant concentration levels in excess of the Steady State Limits, up to the Transient Limits, for the specified limited time intervals without having a significant effect on the structural integrity of the Reactor Coolant System. The time interval permitting continued operation within the restrictions of the Transient Limits provides time for taking corrective actions to restore the contaminant concentrations to within the Steady State Limits.

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

3/4.4.8 SPECIFIC ACTIVITY

The limitations on the specific activity of the primary coolant ensure that the resulting 2 hour doses at the site boundary will not exceed an appropriately small fraction of Part 100 limits following a steam generator tube rupture accident.

The ACTION statement permitting POWER OPERATION to continue for limited time periods with the primary coolant's specific activity > 1.0 uCi/gram DOSE EQUIVALENT I-131, but within the allowable limit shown on Figure 3.4-1, accommodates possible iodine spiking phenomenon which may occur following changes in THERMAL POWER.

3.4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 DOSE RATE

This specification is provided to ensure that the dose rate at anytime from gaseous effluents from all units on the site will be within the annual dose limits of 10 CFR Part 20 for all areas offsite. The annual dose limits are the doses associated with the concentrations of 10 CFR Part 20, Appendix B, Table II. These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of an individual offsite to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 (10 CFR Part 20.106(b)). For individuals who may at times be within the site boundary, the occupancy of the individual will be sufficiently low to compensate for any increase in the atmospheric diffusion factor above background to an individual at or beyond the site boundary to ≤ 500 mrem/year to the total body or to ≤ 3000 mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid or any other organ dose rate above background to a child via the inhalation pathway to ≤ 1500 mrem/year.

3/4.11.2.2 DOSE, NOBLE GASES

This specification is provided to implement the requirements of Sections II.B, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Condition for Operation implements the guides set forth in Section II.B of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in gaseous effluents will be kept "as low as reasonably achievable." The Surveillance Requirements implement the requirements in Section III.A of Appendix I that conform with the guides of Appendix I to be shown by calculational procedures based on models and data such that the actual exposure of an individual through the dose calculations established in the ODCM for calculating the doses due to the actual release rates of radioactive noble gases in gaseous effluents will be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977 and Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled-Reactors," Revision 1, July 1977.

The ODCM equations provided for determining the air doses at the site boundary are based upon utilizing successively more realistic dose calculational methodologies. More realistic dose calculational methods are