DUKE POWER COMPANY
P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

April 4, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Re: Catawba Nuclear Station, Unit 1
Docket No. 50-413
Proof and Review Technical Specifications

Dear Mr. Denton:

Please find attached proposed changes to the Proof and Review Technical Specifications for Catawba Unit 1. These changes reflect corrections to errors presently contained in the Specifications.

Very truly yours,

Hal B. Tucker

Hal B. Tucker

RWO/php

Attachment

cc: Mr. James P. O'Reilly
Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

NRC Resident Inspector
Catawba Nuclear Station

Mr. Robert Guild, Esq.
Attorney-at-Law
P. O. Box 12097
Charleston, South Carolina 29205

Mr. Jesse L. Riley
Carolina Environmental Study Group
854 Henley Place
Charlotte, North Carolina 28207

Palmetto Alliance
2135½ Devine Street
Columbia, South Carolina 28207

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BASES

SECTION | PAGE

TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

SENSOR ERROR

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	(S)	TRIP SETPOINT	ALLOWABLE VALUE
1. Manual Reactor Trip	N.A.	N.A.	N.A.	N.A.	N.A.
2. Power Range, Neutron Flux					
a. High Setpoint	7.5	4.56	0	≤109% of RTP*	≤111.2% of RTP*
b. Low Setpoint	8.3	4.56	0	≤25% of RTP*	≤27.2% of RTP*
3. Power Range, Neutron Flux, High Positive Rate	1.6	0.5	0	≤5% of RTP* with a time constant ≥ 2 seconds	≤6.3% of RTP* with a time constant ≥ 2 seconds
4. Power Range, Neutron Flux, High Negative Rate	1.6	0.5	0	≤5% of RTP* with a time constant ≥2 seconds	≤6.3% of RTP* with a time constant ≥2 seconds
5. Intermediate Range, Neutron Flux	17.0	8.4	0	≤25% of RTP*	≤31% of RTP*
6. Source Range, Neutron Flux	17.0	10	0	≤10^5 cps	≤1.4×10^5 cps
7. Overtemperature ΔT	6.4	3.92	2.2	See Note 1	See Note 2
8. Overpower ΔT	4.6	1.4	1.2	See Note 3	See Note 4
9. Pressurizer Pressure-Low	3.0	0.71	1.5	≥1945 psig	≥1934 psig
10. Pressurizer Pressure-High	3.1	0.71	1.5	≤2385 psig	≤2396 psig
11. Pressurizer Water Level-High	5.0	2.18	1.5	≤92% of instrument span	≤93.8% of instrument span
12. Reactor Coolant Flow-Low	2.5	1.77	0.6	≥90% of loop design flow**	≥88.8% of loop design flow**

*RTP = RATED THERMAL POWER
**Loop design flow = 96,900 gpm

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
13. Steam Generator Water Level Low-Low	12	12.18	1.5	≥~~12~~ 17% of span from 0% to 30% RTP* increasing linearly to ~~≥54.9% of span from 30% to 100% RTP*~~ 59.9% of span at full load	≥~~10.25~~% of span from 0% to 30% RTP* increasing linearly to ~~≥53.15% of span from from 30% to 100% RTP*~~
14. Undervoltage - Reactor Coolant Pumps	~~5.0~~ 8.57	~~(3.09)~~ 0.0	1.0	≥~~4692 volts~~ 77% of bus voltage with .7 sec response time (5082 volts)	≥~~(4760) volts~~ 76% (5016 volts)
15. Underfrequency - Reactor Coolant Pumps	~~1.3~~ 4.0	~~(0)~~ 0.0	~~(0.1)~~ 1.0	≥~~57.2~~ 56.4 Hz with a .2 sec. response time	≥~~(57.1)~~ 55.9 Hz
16. Turbine Trip					
a. Low Control Valve EH Pressure	N.A.	N.A.	N.A.	≥550 psig	≥500 psig
b. Turbine Stop Valve Closure	N.A.	N.A.	N.A.	≥1% open	≥1% open
17. Safety Injection Input from ESF	N.A.	N.A.	N.A.	N.A.	N.A.

~~*RTP = RATED THERMAL POWER~~

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TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
18 Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	N.A.	N.A.	N.A.	≥1 x 10^{-10} amps (-10)	≥6 x 10^{-11} amps
b. Low Power Reactor Trips Block, P-7					
1) P-10 input	N.A.	N.A.	N.A.	≤10% of RTP*	≤12.2% of RTP*
2) P-13 input	N.A.	N.A.	N.A.	<10% RTP* Turbine Impulse Pressure Equivalent	<12.2% RTP* Turbine Impulse Pressure Equivalent
c. Power Range Neutron Flux, P-8	N.A.	N.A.	N.A.	<48% of RTP*	≤50.2% of RTP*
d. Power Range Neutron Flux, P-9	N.A.	N.A.	N.A.	≤69% of RTP*	≤70% of RTP*
e. Power Range Neutron Flux, P-10	N.A.	N.A.	N.A	≥10% of RTP*	≥7.8% of RTP*
f. Turbine Impulse Chamber Pressure, P-13	N.A.	N.A.	N.A.	<10% RTP* Turbine Impulse Pressure Equivalent	<12.2% RTP* Turbine Impulse Pressure Equivalent
19. Reactor Trip Breakers	N.A.	N.A.	N.A	N.A.	N.A.
20. Automatic Trip and Interlock Logic	N.A.	N.A.	N.A.	N.A.	N.A.

*RTP = RATED THERMAL POWER

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2.1 SAFETY LIMITS

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BASES

2.1.1 REACTOR CORE

The restrictions of this Safety Limit prevent overheating of the fuel and possible cladding perforation which would result in the release of fission products to the reactor coolant. Overheating of the fuel cladding is prevented by restricting fuel operation to within the nucleate boiling regime where the heat transfer coefficient is large and the cladding surface temperature is slightly above the coolant saturation temperature.

Operation above the upper boundary of the nucleate boiling regime could result in excessive cladding temperatures because of the onset of departure from nucleate boiling (DNB) and the resultant sharp reduction in heat transfer coefficient. DNB is not a directly measurable parameter during operation and therefore THERMAL POWER and Reactor Coolant Temperature and Pressure have been related to DNB through the WRB-1 correlation. The WRB-1 DNB correlation has been developed to predict the DNB flux and the location of DNB for axially uniform and nonuniform heat flux distributions. The local DNB heat flux ratio, (DNBR), is defined as the ratio of the heat flux that would cause DNB at a particular core location to the local heat flux, and is indicative of the margin to DNB.

The DNB design basis is as follows: there must be at least a 95 percent probability that the minimum DNBR of the limiting rod during Condition I and II events is greater than or equal to the DNBR limit of the DNB correlation being used (the WRB-1 correlation in this application). The correlation DNBR limit is established based on the entire applicable experimental data set such that there is a 95 percent probability with 95 percent confidence that DNB will not occur when the minimum DNBR is at the DNBR limit.

In meeting this design basis, uncertainties in plant operating parameters, nuclear and thermal parameters, and fuel fabrication parameters are considered statistically such that there is at least a 95 confidence that the minimum DNBR for the limiting rod is greater than or equal to the DNBR limit. The uncertainties in the above plant parameters are used to determine the plant DNBR uncertainty. This DNBR uncertainty, combined with the correlation DNBR limit, establishes a design DNBR value which must be met in plant safety analyses using values of input parameters without uncertainties.

The curves of Figures 2.1-1 and 2.1-2 show the loci of points of TERMAL (H) POWER, Reactor Coolant System pressure and average temperature below which the calculated DNBR is no less than the design DNBR value, or the average enthalpy at the vessel exit is less than the enthalpy of saturated liquid.

Steam Generator Water Level

The Steam Generator Water Level Low-Low trip protects the reactor from loss of heat sink in the event of a sustained steam/feedwater flow mismatch resulting from loss of normal feedwater. The specified Setpoint provides allowances for starting delays of the Auxiliary Feedwater System.

Undervoltage and Underfrequency - Reactor Coolant Pump Busses

The Undervoltage and Underfrequency Reactor Coolant Pump Bus trips provide core protection against DNB as a result of complete loss of forced coolant flow. The specified Setpoints assure a Reactor trip signal is generated before the Low Flow Trip Setpoint is reached. Time delays are incorporated in the Underfrequency and Undervoltage trips to prevent spurious Reactor trips from momentary electrical power transients. For undervoltage, the delay is set so that the time required for a signal to reach the Reactor trip breakers following the simultaneous trip of two or more reactor coolant pump bus circuit breakers shall not exceed 1.2 seconds. For underfrequency, the delay is set so that the time required for a signal to reach the Reactor trip breakers after the Underfrequency Trip Setpoint is reached shall not exceed 0.3 second. On decreasing power the Undervoltage and Underfrequency Reactor Coolant Pump Bus trips are automatically blocked by P-7 (a power level of approximately 10% of RATED THERMAL POWER with a turbine impulse chamber pressure at approximately 10% of full power equivalent); and on increasing power, reinstated automatically by P-7.

Turbine Trip

A Turbine trip initiates a Reactor trip. On decreasing power the Reactor trip from the Turbine trip is automatically blocked by P-9 (a power level of approximately 70% of RATED THERMAL POWER); and on increasing power, reinstated automatically by P-9.

69%

Safety Injection Input from ESF

If a Reactor trip has not already been generated by the Reactor Trip System instrumentation, the ESF automatic actuation logic channels will initiate a Reactor trip upon any signal which initiates a Safety Injection. The ESF instrumentation channels which initiate a Safety Injection signal are shown in Table 3.3-3.

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FLOW PATHS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.2 At least two* of the following three boron injection flow paths shall be OPERABLE:

a. The flow path from the boric acid tanks via a boric acid transfer pump and a charging pump to the Reactor Coolant System, and

b. Two flow paths from the refueling water storage tank via charging pumps to the Reactor Coolant System.

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

ACTION:

With only one of the above required boron injection flow paths to the Reactor Coolant System OPERABLE, restore at least two boron injection flow paths to the Reactor Coolant System to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to at least 1% $\Delta k/k$ at 200°F within the next 6 hours; restore at least two flow paths to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

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

a. At least once per 7 days by verifying that the temperature of the heated portion of the flow path from the boric acid tanks is greater than or equal to 65°F when it is a required water source;

b. 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;

c. At least once per 18 months during shutdown by verifying that each automatic valve in the flow path actuates to its correct position on a Safety Injection test signal; and

d. At least once per 18 months by verifying that the flow path required by Specification 3.1.2.2a. delivers at least 30 gpm to the Reactor Coolant System.

*Only one boron injection flow path is required to be OPERABLE whenever the temperature of one or more of the ~~RCS~~ Reactor Coolant System cold legs is less than or equal to 300°F.

REACTIVITY CONTROL SYSTEMS

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CHARGING PUMP - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.4 At least two* charging pumps shall be OPERABLE.

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

ACTION:

With only one charging pump OPERABLE, restore at least two charging pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to at least 1% Δk/k at 200°F within the next 6 hours; restore at least two charging pumps to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.4.1 At least two charging pumps shall be demonstrated OPERABLE by verifying that a differential pressure across each pump of greater than or equal to 2380 psid is developed when tested pursuant to Specification 4.0.5.

4.1.2.4.2 All charging pumps, except the above required OPERABLE pump, shall be demonstrated inoperable at least once per 31 days whenever the temperature of one or more of the RCS cold legs is less than or equal to 300°F by verifying that the motor circuit breakers are secured in the open position or that the discharge of each charging pump has been isolated from the Reactor Coolant System by at least two isolation valves with power removed from the valve motor operators.

Reactor Coolant System

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*A maximum of one centrifugal charging pump shall be OPERABLE whenever the temperature of one or more of the RCS cold legs is less than or equal to 300°F.

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BORATED WATER SOURCE - SHUTDOWN

LIMITING CONDITION FOR OPERATION

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

a. A Boric Acid Storage System with:

1) A minimum contained borated water volume of 5100 gallons,

2) A minimum boron concentration of 7000 ppm, and

3) A minimum solution temperature of 65°F.

b. The refueling water storage tank with:

1) A minimum contained borated water volume of 26,000 gallons, ~~(indicated water level of 6%)~~,

2) A minimum boron concentration of 2000 ppm, and

3) A minimum solution temperature of 70°F.

APPLICABILITY: MODES 5 and 6.

ACTION:

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

SURVEILLANCE REQUIREMENTS

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

a. At least once per 7 days by:

1) Verifying the boron concentration of the water,

2) Verifying the contained borated water volume, and

3) Verifying the boric acid storage tank solution temperature when it is the source of borated water.

b. At least once per 24 hours by verifying the refueling water storage tank temperature when it is the source of borated water and the outside air temperature is less than 70°F.

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BORATED WATER SOURCE - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.6 As a minimum, the following borated water source(s) shall be OPERABLE as required by Specification 3 1.2.2:

a. A Boric Acid Storage System with:

   1) A minimum contained borated water volume of 19500 gallons,

   2) A minimum boron concentration of 7000 ppm, and

   3) A minimum solution temperature of 65°F.

b. The refueling water storage tank with:

   1) A contained borated water volume of at least 350,000 gallons ~~(indicated water level of 90%)~~,

   2) A minimum boron concentration of 2000 ppm,

   3) A minimum solution temperature of 70°F, and

   4) A maximum solution temperature of 100°F.

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

ACTION:

a. With the Boric Acid Storage System inoperable and being used as one of the above required borated water sources, restore the system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to at least 1% $\Delta k/k$ at 200°F; restore the Boric Acid Storage System to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

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

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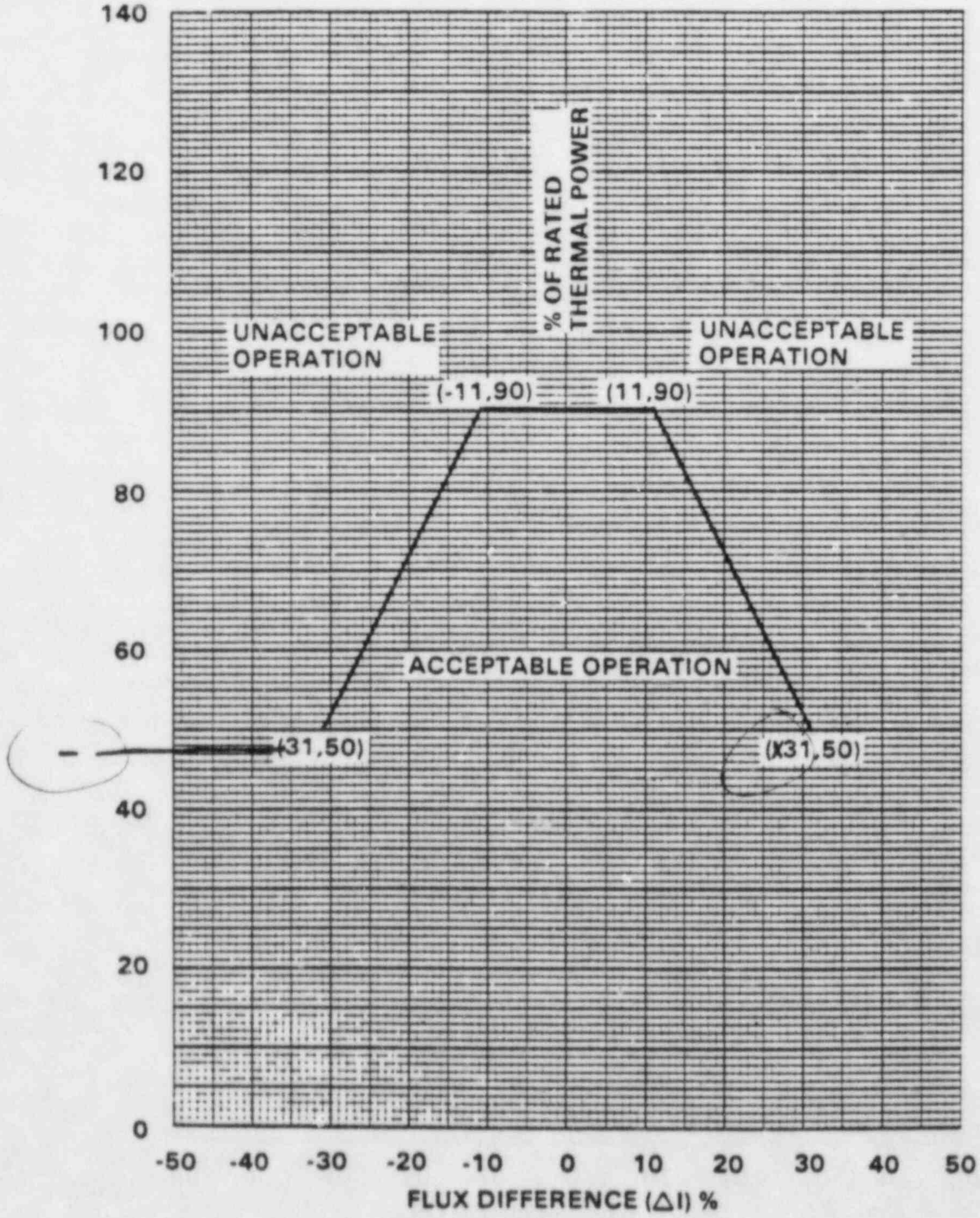

FIGURE 3.2-1

AXIAL FLUX DIFFERENCE LIMITS AS A FUNCTION OF RATED THERMAL POWER

3/4.2.2 HEAT FLUX HOT CHANNEL FACTOR - $F_Q(Z)$

LIMITING CONDITION FOR OPERATION

3.2.2 $F_Q(Z)$ shall be limited by the following relationships:

$$F_Q(Z) \leq \left[\frac{2.32}{P}\right] [K(Z)] \text{ for } P > 0.5$$

$$F_Q(Z) \leq [4.64] [K(Z)] \text{ for } P \leq 0.5$$

Where: $P = \frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$, and

K(Z) = the function obtained from Figure 3.2-2 for a given core height location.

APPLICABILITY: MODE 1.

ACTION:

With $F_Q(Z)$ exceeding its limit:

a. Reduce THERMAL POWER at least 1% for each 1% $F_Q(Z)$ exceeds the limit within 15 minutes and similarly reduce the Power Range Neutron Flux-High Trip Setpoints within the next 4 hours; POWER OPERATION may proceed for up to a total of 72 hours; subsequent POWER OPERATION may proceed provided the Overpower ΔT Trip Setpoints have been reduced at least 1% for each 1% $F_Q(Z)$ exceeds the limit, and

b. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER above the reduced ~~limit required by~~ ACTION a.1;, above; THERMAL POWER may then be increased provided $F_Q(Z)$ is demonstrated through incore mapping [to be within its limit.]

3/4.2.3 REACTOR COOLANT SYSTEM FLOW RATE AND NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR

LIMITING CONDITION FOR OPERATION

3.2.3 The combination of indicated Reactor Coolant System total flow rate and R shall be maintained within the region of allowable operation shown on Figure 3.2-3 for four loop operation.

Where:

a. $R = \dfrac{F^N_{\Delta H}}{1.49\ [1.0 + 0.3\ (1.0 - P)]}$,

b. $P = \dfrac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$, and

c. $F^N_{\Delta H}$ = Measured values of $F^N_{\Delta H}$ obtained by using the movable incore detectors to obtain a power distribution map. The measured values of $F^N_{\Delta H}$ shall be used to calculate R since Figure 3.2-3 includes penalties for undetected feedwater venturi fouling of 0.1% and for measurement uncertainties of 1.9% for flow and 4% for incore measurement of $F^N_{\Delta H}$.

APPLICABILITY: MODE 1.

ACTION:

1. With the combination of Reactor Coolant System total flow rate and R outside the region of acceptable operation shown on Figure 3.2-3:

   a. Within 2 hours either:

      1. Restore the combination of Reactor Coolant System total flow rate and R to within the above limits, or

      2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER and reduce the Power Range Neutron Flux - High Trip Setpoint to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours.

TABLE 3.3-2

REACTOR TRIP SYSTEM INSTRUMENTATION RESPONSE TIMES

FUNCTIONAL UNIT	RESPONSE TIME
1. Manual Reactor Trip	N.A.
2. Power Range, Neutron Flux	$\leq$ 0.5 second*
3. Power Range, Neutron Flux, High Positive Rate	N.A.
4. Power Range, Neutron Flux, High Negative Rate	$\leq$ 0.5 second*
5. Intermediate Range, Neutron Flux	N.A.
6. Source Range, Neutron Flux	N.A.
7. Overtemperature ΔT	$\leq$ 4 seconds*
8. Overpower ΔT	$\leq$ 4 seconds*
9. Pressurizer Pressure-Low	$\leq$ 2 seconds
10. Pressurizer Pressure-High	$\leq$ 2 seconds
11. Pressurizer Water Level-High	N.A.

*Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
8. Auxiliary Feedwater					
a. Manual Initiation	1	1	1	1, 2, 3	22
b. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3	21
c. Stm. Gen. Water Level-Low-Low					
1) Start Motor-Driven Pumps	4/stm. gen.	2/stm. gen. in any operating stm. gen.	3/stm. gen. in each operating stm. gen.	1, 2, 3	19*
2) Start Turbine-Driven Pump	4/stm. gen	2/stm. gen. in any operating stm. gen.	3/stm. gen. in each operating stm. gen.	1, 2, 3	19*
d. Safety Injection-Start Motor-Driven Pumps	See Item 1. above for all Safety Injection initiating functions and requirements.				
e. Loss-of-Offsite Power-Start Motor-Driven Pumps and Turbine-Driven Pump	6-3/bus	2/bus either bus	2/bus	1, 2, 3	19*

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
8. Auxiliary Feedwater (Continued)					
f. Trip of All Main Feedwater Pumps-Start Motor-Driven Pumps	2/pump	1/pump	1/pump	1, 2#	14
g. Auxiliary Feedwater Suction Pressure-Low	6-3/pump	2/pump	2/pump	1, 2, 3	22
9. Containment Sump Recirculation					
a. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4	21
b. Refueling Water Storage Tank Level-Low	4	2	3	1, 2, 3, 4	16
Coincident With Safety Injection	See Item 1. above for all Safety Injection initiating functions and requirements.				
10. Loss of Power					
4 kV Bus Undervoltage-Grid Degraded Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	15*
11. Control Room Area Ventilation ~~Isolation~~ Operation					
a. Manual Initiation	2	1	2	All	18

d. Safety Injection See Item 1. above for all Safety Injection initiating functions and requirements.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
11. Control Room Area Ventilation ~~Isolation~~ Operation (Continued)					
b. Automatic Actuation Logic and Actuation Relays	2	1	2	All	14
c. Loss-of-Offsite Power	3	2	2	1, 2, 3	19*
12. Containment Air Return and Hydrogen Skimmer Operation					
a. Manual Initiation	2	1	2	1,2,3,4	18
b. Automatic Actuation Logic and Actuation Relays	2	1	2	1,2,3,4	21
c. Containment Pressure-High-High	4	2	3	1,2,3	16
13. Annulus Ventilation Operation					
a. Manual Initiation	2	1	2	1,2,3,4	18
b. Automatic Actuation Logic and Actuation Relays	2	1	2	1,2,3,4	21
c. Safety Injection	See Item 1. above for all Safety Injection initiating functions and requirements.				
14. Nuclear Service Water Operation					
a. Manual Initiation	2	1	2	1,2,3,4	18

TABLE 3.3-4

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
1. Safety Injection (Reactor Trip, Phase "A" Isolation, Feedwater Isolation, Auxiliary Feedwater-Motor-Driven Pump, Purge & Exhaust Isolation, Annulus Ventilation Operation, [Control Room Area Ventilation Operation] Auxiliary Building [Filtered] Ventilation [Exhaust] Isolation, Emergency Diesel Generator Operation, Component Cooling Water, Turbine Trip, and Nuclear Service Water Operation)					
a. Manual Initiation	N.A.	N.A.	N.A.	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
c. Containment Pressure-High	3.0	0.71	1.5	≤ 1.2 psig	≤ 1.37 psig
d. Pressurizer Pressure-Low	12.5	10.71	1.5	≥ 1845 psig	≥ 1835 psig
e. Steam Line Pressure-Low	24.6	10.71	1.5	≥ 710 psig	≥ 671 psig*
2. Containment Spray (Nuclear Service Water Operation)					
a. Manual Initiation	N.A.	N.A.	N.A.	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
c. Containment Pressure-High-High	3.0	0.71	1.5	≤ 3 psig	≤ 3.17 psig

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
10. Loss of Power					
4 kV Bus Undervoltage-Grid Degraded Voltage	N.A.	N.A.	N.A.	3500 ± 175 volts with a 8.5 ± 0.5 second time delay	≥ 3200 volts
11. Control Room Area Ventilation ~~Isolation~~ Operation					
a. Manual Initiation	N.A.	N.A.	N.A.	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
c. Loss-of-Offsite Power	N.A.	N.A.	N.A.	N.A.	N.A.
d. Safety Injection	See Item 1. above for all Safety Injection Setpoints and Allowable Values.				
12. Containment Air Return and Hydrogen Skimmer Operation					
a. Manual Initiation	N.A.	N.A.	N.A.	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
c. Containment Pressure-High-High	3.0	0.71	1.5	≤3 psig	<3.17 psig

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TABLE 3.3-5

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATION SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
1. Manual Initiation	
a. Safety Injection (ECCS)	N.A.
b. Containment Spray	N.A.
c. Phase "A" Isolation	N.A.
d. Phase "B" Isolation	N.A.
e. Purge and Exhaust Isolation	N.A.
f. Steam Line Isolation	N.A.
g. Diesel Building Ventilation Isolation	N.A.
h. Auxiliary Feedwater	N.A.
i. Nuclear Service Water Operation	N.A.
j. Turbine Trip	N.A.
k. Component Cooling Water	N.A.
l. Annulus Ventilation Operatio	N.A.
m. Control Room Area Ventilatio ~~Isolation~~ Operation	N.A.
n. Auxiliary Building Filtered Ventilation Exhaust Isolation	N.A.
o. Reactor Trip	N.A.
p. Emergency Diesel Generator Operation	N.A.
q. Containment Air Return and Hydrogen Skimmer Operation	N.A.
2. Containment Pressure-High	
a. Safety Injection (ECCS)	≤ 27(1)
1) Reactor Trip	≤ 2
2) Feedwater Isolation	≤ 7
3) Phase "A" Isolation(2)	≤ 18(3)/28(4)
4) Purge and Exhaust Isolation	N.A.
5) Auxiliary Feedwater(5)	N.A.
6) Nuclear Service Water Operation	≤ 65(3)/76(4)
7) Turbine Trip	N.A.
8) Component Cooling Water	≤ 65(3)/76(4)
9) Emergency Diesel Generator Operation	≤ 11

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TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
2. Containment Pressure-High (Continued)	
10) Annulus Ventilation Operation	≤ 23
11) Auxiliary Building Filtered Ventilation Exhaust Isolation	N.A.
12) Containment Sump Recirculation	N.A.
3. Pressurizer Pressure-Low	
a. Safety Injection (ECCS)	≤ 27(1)/12(3)
1) Reactor Trip	≤ 2
2) Feedwater Isolation	≤ 7
3) Phase "A" Isolation(2)	≤ 18(3)/28(4)
4) Purge and Exhaust Isolation	N.A.
5) Auxiliary Feedwater(5)	N.A.
6) Nuclear Service Water Operation	≤ 76(1)/65(3)
7) Turbine Trip	N.A.
8) Component Cooling Water	≤ 76(1)/65(3)
9) Emergency Diesel Generator Operation	≤ 11
10) Annulus Ventilation Operation	≤ 23
11) Auxiliary Building Filtered Ventilation Exhaust Isolation	N.A.
12) Containment Sump Recirculation	N.A.
4. Steam Line Pressure-Low	
a. Safety Injection (ECCS)	≤ 12(3)/22(4)
1) Reactor Trip	≤ 2
2) Feedwater Isolation	≤ 7
3) Phase "A" Isolation(2)	≤ 18(3)/28(4)
4) Purge and Exhaust Isolation	N.A.
5) Auxiliary Feedwater(5)	≤ 60
6) Nuclear Service Water Operation	≤ 65(3)/76(4)
7) Turbine Trip	N.A.
8) Component Cooling Water	≤ 65(3)/76(4)
9) Emergency Diesel Generator Operation	≤ 11
10) Annulus Ventilation Operation	≤ 23

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TABLE 4.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Safety Injection (Reactor Trip, Phase "A" Isolation, Feedwater Isolation, Auxiliary Feedwater-Motor-Driven Pump, Purge and Exhaust Isolation, Annulus Ventilation Operation, Auxiliary Building Ventilation Operation, Control Room Area Ventilation Operation, Emergency Diesel Generators Operation, Component Cooling Water, Turbine Trip, and Nuclear Service Water Operation)								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3
c. Containment Pressure-High	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2, 3
d. Pressurizer Pressure-Low	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e. Steam Line Pressure-Low	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2, 3
2. Containment Spray (Nuclear Service Water Operation)								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3, 4
c. Containment Pressure-High-High	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2, 3

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
5. Feedwater Isolation (Continued)								
b. Steam Generator Water Level-High-High (P-14)	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2
c. T_{avg}-Low (P-4 Interlock)	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2
d. Doghouse Water Level-High	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2
e. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
6. Turbine Trip								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2
c. Steam Generator Water Level-High-High (P-14)	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2
d. Trip of All Main Feedwater Pumps	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1,2
e. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
7. Containment Pressure Control System								
a. Start Permissive	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Termination	S	R	M	N.A.	N.A	N.A.	N.A.	1, 2, 3, 4

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TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
10. Loss of Power								
4 kV Bus Undervoltage-Grid Degraded Voltage	N.A.	~~R~~ N.A.	N.A.	~~M~~ R	N.A.	N.A.	N.A.	1, 2, 3, 4
11. Control Room Area Ventilation ~~Isolation~~ Operation								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	All
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	All
c. Loss-of-Offsite Power	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
d. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
12. Containment Air Return and Hydrogen Skimmer Operation								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3, 4
c. Containment Pressure-High-High	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2, 3
13. Annulus Ventilation Operation								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4

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TABLE 3.3-6 (Continued)

TABLE NOTATIONS

* With fuel in the fuel storage pool areas.
** With irradiated fuel in the fuel storage pool areas.
*** Must satisfy the requirements of Specification 3.11.2.1.

ACTION STATEMENTS

ACTION 26 - With less than the Minimum Channels OPERABLE requirement, operation may continue provided the containment purge and exhaust valves are maintained closed.

ACTION 27 - With the number of operable channels one less than the Minimum Channels OPERABLE requirement, within 1 hour isolate the affected Control Room Ventilation System ~~and initiate operation of the Control Room Ventilation System in the recirculation mode.~~ intake from outside air with recirculating flow through the HEPA filters and charcoal adsorbers

ACTION 28 - With less than the Minimum Channels OPERABLE requirement, operation may continue for up to 30 days provided an appropriate portable continuous monitor with the same Alarm Setpoint is provided in the fuel storage pool area. Restore the inoperable monitors to OPERABLE status within 30 days or suspend all operations involving fuel movement in the fuel building.

ACTION 29 - Must satisfy the ACTION requirement for Specification 3.4.6.1.

ACTION 30 - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue provided the Fuel Handling Ventilation Exhaust System is operating and discharging through the HEPA filters and charcoal adsorbers. Otherwise, suspend all operations involving fuel movement in the fuel building.

ACTION 31 - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue provided the Auxiliary Building Filtered Ventilation System Exhaust is operating and discharging through the HEPA filter and charcoal adsorbers.

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SEISMIC INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.3 The seismic monitoring instrumentation shown in Table 3.3-7 shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With one or more of the above required seismic monitoring instruments inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to OPERABLE status.

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

SURVEILLANCE REQUIREMENTS

4.3.3.3.1 Each of the above required seismic monitoring instruments shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST operations at the frequencies shown in Table 4.3-4.

4.3.3.3.2 Each of the above ~~required~~ accessible seismic monitoring instruments actuated during a seismic event greater than or equal to 0.01 g shall be restored to OPERABLE status within 24 hours following the seismic event. Data shall be retrieved from actuated instruments and analyzed to determine the magnitude of the vibratory ground motion. Data retrieved from the triaxial time-history accelerograph shall include a post-event CHANNEL CALIBRATION obtained by actuation of the internal test and calibrate function immediately prior to removing data. CHANNEL CALIBRATION shall be performed immediately after insertion of the new recording media in the triaxial time-history accelerograph recorder. A Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 10 days describing the magnitude, frequency spectrum, and resultant effect upon facility features important to safety.

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TABLE 3.3-7

SEISMIC MONITORING INSTRUMENTATION

INSTRUMENTS AND SENSOR LOCATIONS	MEASUREMENT RANGE	MINIMUM INSTRUMENTS OPERABLE
1. Triaxial Time-History Accelerographs		
a. 1MIMT 5070 (Remote Sensor A) Containment Base Slab	-1 g to + 1 g	1
b. 1MIMT 5080 (Remote Sensor B) Containment Vessel Elev 619'5"	-1 g to + 1 g	1
c. 1MIMT 5090 (Starter Unit) Containment Base Slab	0.005 g to 0.05 g	1
2. Triaxial Peak Accelerographs		
a. 1MIMT 5010 - Containment Bldg. Elev 613'8 9/16"	0 g to + 2 g	1
b. 1MIMT 5020 - Containment Bldg. Elev 567'2½"	0 g to + 2 g	1
c. 1MIMT 5030 - Auxiliary Bldg. Elev 543'	0 g to + 2 g	1
3. Triaxial Seismic Switch		
1MIMT 5000 - Containment Base Slab	0.025 g to 0.25 g	1*
4. Triaxial Response-Spectrum Recorders		
a. 1MIMT 5040 - Containment Base Slab	0 to 34 g at 2 to 25 Hz	1*
b. 1MIMT 5050 - Containment Bldg. Elev 579'3½"	0 to 34 g at 2 to 25 Hz	1
c. 1MIMT 5060 - Auxiliary Bldg. Elev 577'	0 to 34 g at 2 to 25 Hz	1

*With reactor control room indication.

TABLE 3.3-10

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	TOTAL NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE
1. Containment Pressure	2	1
2. Reactor Coolant Outlet Temperature - T_{HOT} (Wide Range)	2	1
3. Reactor Coolant Inlet Temperature - T_{COLD} (Wide Range)	2	1
4. Reactor Coolant Pressure - Wide Range	2	1
5. Pressurizer Water Level	2	1
6. Steam Line Pressure	2/steam generator	1/steam generator
7. Steam Generator Water Level - Narrow Range	2/steam generator	1/steam generator
8. Refueling Water Storage Tank Water Level	2	1
9. Auxiliary Feedwater Flow Rate	2/steam generator	1/steam generator
10. Reactor Coolant System Subcooling Margin Monitor	~~2~~ - 1	1
11. PORV Flow Indicator*	2/Valve	1/Valve
12. PORV Block Valve Position Indicator**	2/Valve	1/Valve
13. Pressurizer Safety Valve Position Indicator	2/Valve	1/Valve
14. Containment Sump Water Level (Wide Range)	2	1

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TABLE 3.3-10 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	TOTAL NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE
15. In Core Thermocouples	10 X/core quadrant	4 X/core quadrant
16. Unit Vent - High Range Noble Gas Monitor (EMF-36)	1	1
17. Steam Relief Valve Exhaust Monitor	1/steam line	1/steam line
18. Containment Atmosphere - High Range Monitor	2	1
19. Reactor Vessel Water Level	2	1
20. Reactor Coolant Radiation Level (EMF-48)	1 1	1

TABLE NOTATIONS

* Not applicable if the associated block valve is in the closed position.

** Not applicable if the associated block valve is in the closed position and power is removed.

TABLE 4.3-7 (Continued)

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT (Continued)	CHANNEL CHECK	CHANNEL CALIBRATION
15. In Core Thermocouples	M	R
16. Unit Vent - High Range Noble Gas Monitor (EMF-36)	M	R
17. Steam Relief Valve Exhaust Monitor	M	R
18. Containment Atmosphere - High Range Monitor	M	R*
19. Reactor Vessel Water Level	M	R
20. Reactor Coolant Radiation Level (EMF-48)	M	R

*CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10R/h and a one point calibration check of the detector below 10R/h with an installed or portable gamma source.

TABLE 4.3-8

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST
1. Radioactivity Monitors Providing Alarm and Automatic Termination of Release				
a. Waste Liquid Discharge Monitor (Low Range - EMF-49)	D	P	R(3)	Q(1)
b. Turbine Building Sump Monitor (Low Range - EMF-31)	D	M	R(3)	Q(1)
2. Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release				
a. Nuclear Service Water System Effluent Line (EMF-45 A&B, H&L)	D	M	R(3)	Q(2)
b. Component Cooling Water System Effluent Line (EMF-46 A&B)	D	M	R(3)	Q(2)
3. Continuous Composite Samplers and Sampler Flow Monitor				
Conventional Waste Water Treatment Line	D	N.A.	R	~~Q~~ N.A.
4. Flow Rate Measurement Devices				
a. Waste Liquid Effluent Line	D(4)	N.A.	R	~~Q~~ N.A.
b. Conventional Waste Water Treatment	D(4)	N.A.	R	~~Q~~ N.A.
c. Low Pressure Service Water Minimum Flow Interlock	D(4)	N.A.	R	Q

TABLE 4.3-9

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. WASTE GAS HOLDUP SYSTEM					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (Low Range - EMF-50, Low Range -EMF-36)	P	P	R(3)	Q(1)	***
b. Effluent System Flow Rate Measuring Device	P	N.A.	R	N.A.	***
2. WASTE GAS HOLDUP SYSTEM Explosive Gas Monitoring System					
a. Hydrogen Monitor (Recombiner Outlet)	D	N.A.	Q(4)	M	**
b. Oxygen Monitors (Recombiner Outlet)	D	N.A.	Q(5)	M	**
3. Condenser Evacuation System					
Noble Gas Activity Monitor (Low Range - EMF-33)	D	M	R(3)	Q(2)	1, 2, 3, 4
4. Vent System					
a. Noble Gas Activity Monitor (Low Range - EMF-36)	D	M	R(3)	Q(2)	*
b. Iodine Sampler (EMF-37)	W	N.A.	N.A.	N.A.	*

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TABLE 4.3-9 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
4. Vent System (Continued)					
c. Particulate Sampler (EMF-35)	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	~~Q~~ N.A.	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*
5. Containment Purge System					
Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (Low Range - EMF-39, Low Range - EMF-36)	D	P	R(3)	Q(1)	***
6. Containment Air Release and Addition System-Providing Alarm and Automatic Termination of Release (Low Range - EMF-36)	D	P	R(3)	Q(1)	***

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3/4.5 EMERGENCY CORE COOLING SYSTEMS

3/4.5.1 ACCUMULATORS

COLD LEG INJECTION

LIMITING CONDITION FOR OPERATION

3.5.1.1 Each Cold Leg Injection Accumulator System shall be OPERABLE with:

a. The discharge isolation valve open,

b. A contained borated water volume of between 7743 and 7965 gallons [redacted]

c. A boron concentration of between 1900 and 2100 ppm,

d. A nitrogen cover-pressure of between 400 and 454 psig, and

e. A water level and pressure channel OPERABLE.

APPLICABILITY: MODES 1, 2, and 3*.

ACTION:

a. With one Cold Leg Injection Accumulator System inoperable, except as a result of a closed isolation valve, restore the inoperable accumulator to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one Cold Leg Injection Accumulator System inoperable due to the isolation valve being closed, either immediately open the isolation valve or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.5.1.1.1 Each Cold Leg Injection Accumulator System shall be demonstrated OPERABLE:

a. At least once per 12 hours by:

1) Verifying, by the absence of alarms, the contained borated water volume and nitrogen cover-pressure in the tanks, and

2) Verifying that each cold leg injection accumulator isolation valve is open.

*Pressurizer pressure above 1000 psig.

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SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to ~~1% of tank volume~~ 75 gallons by verifying the boron concentration of the accumulator solution;

c. At least once per 31 days when the Reactor Coolant System pressure is above 2000 psig by verifying that power to the isolation valve operator is disconnected by removal of the breaker from the circuit; and

d. At least once per 18 months by verifying that each cold leg injection accumulator isolation valve opens automatically under each of the following conditions:

1) When an actual or a simulated Reactor Coolant System pressure signal exceeds the P-11 (Pressurizer Pressure Block of Safety Injection) Setpoint, and

2) Upon receipt of a Safety Injection test signal.

4.5.1.1 2 Each Cold Leg Injection Accumulator System water level and pressure channel shall be demonstrated OPERABLE:

a. At least once per 31 days by the performance of an ANALOG CHANNEL OPERATIONAL TEST, and

b. At least once per 18 months by the performance of a CHANNEL CALIBRATION.

LIMITING CONDITION FOR OPERATION

3.5.1.2 Each Upper Head Injection Accumulator System shall be OPERABLE with:

a. The discharge isolation valves open,

b. A minimum contained borated water volume of 1807 cubic feet,

c. A boron concentration of between 1900 and 2100 ppm, and

d. The nitrogen-bearing accumulator pressurized to between 1206 and 1264 psig.

APPLICABILITY: MODES 1, 2, and 3.*

ACTION:

a. With the Upper Head Injection Accumulator System inoperable, except as a result of closed isolation valve(s), restore the Upper Head Injection Accumulator System to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With the Upper Head Injection Accumulator System inoperable due to the isolation valve(s) being closed, either immediately open the isolation valve(s) or be in HOT STANDBY within 6 hours and be in HOT SHUTDOWN within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.5.1.2 Each Upper Head Injection Accumulator System shall be demonstrated OPERABLE:

a. At least once per 12 hours by:

1) Verifying the contained borated water level in the surge tank and nitrogen pressure in the accumulators, and

2) Verifying that each accumulator discharge isolation valve is open.

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*Pressurizer pressure above 1900 psig.

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3/4.5.4 REFUELING WATER STORAGE TANK

LIMITING CONDITION FOR OPERATION

3.5.4 The refueling water storage tank shall be OPERABLE with:

a. A minimum contained borated water volume of 350,000 gallons ~~(90% water level indication)~~,

b. A boron concentration of between 2000 and 2100 ppm of boron,

c. A minimum solution temperature of 70°F, and

d. A maximum solution temperature of 100°F.

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

ACTION:

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

SURVEILLANCE REQUIREMENTS

4.5.4 The refueling water storage tank shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1) Verifying the contained borated water level in the tank, and

2) Verifying the boron concentration of the water.

b. At least once per 24 hours by verifying the refueling water storage tank temperature when the outside air temperature is less than 70°F or greater than 100°F.

c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%;

d. At least once per 18 months by:

1) Verifying that the pressure drop across the combined HEPA filters, ~~and~~ charcoal adsorber banks is less than 8 inches Water Gauge while operating the system at a flow rate of 9000 cfm ± 10%;

2) Verifying that the system starts automatically on any Phase "A" Isolation test signal,

3) Verifying that the filter cooling electric motor-operated bypass valves can be manually opened,

4) Verifying that each system produces a negative pressure of greater than or equal to 0.5 inch Water Gauge in the annulus within 1 minute after a start signal, and

5) Verifying that the pre-heaters dissipate 45 ± 6.7 kW when tested in accordance with ANSI N510-1975.

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% in accordance with ANSI N510-1975 for a DOP test aerosol while operating the system at a flow rate of 9000 cfm ± 10%; and

f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% in accordance with ANSI N510-1975 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 9000 cfm ± 10%.

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Sec.)
1. Phase "A" Isolation (Continued)		
KC-305B#	Excess Letdown Hx Supply Containment Isolation (Outside)	≤20
KC-315B#	Excess Letdown Hx Return Header Containment Isolation (Outside)	≤20
KC-320A#	NCDT Hx Supply Hdr Containment Isolation (Outside)	≤20
KC-332B#	NCDT Hx Return Hdr Containment Isolation (Inside)	≤20
KC-333A#	NCDT Hx Return Hdr Containment Isolation (Outside)	≤20
KC-429B	RB Drain Header Inside Containment Isolation	≤10
KC-430A	RB Drain Header Outside Containment Isolation	≤10
NB-260B	Reactor Makeup Water Tank to Flush Header	≤10
NC-53B	Nitrogen to Pressurizer Relief Tank #1 Containment Isolation Outside	≤10
NC-54A	Nitrogen to Pressurizer Relief Tank #1 Containment Isolation Inside	≤10
NC-56B	RMW Pump Disch Cont Isolation	≤10
NC-195B	NC Pump Motor Oil Containment Isolation Outside	≤10
NC-196A	NC Pump Motor Oil Containment Isolation Inside	≤10
NF-228A	Unit 1 Air Handling Units Glycol Supply Containment Isolation Outside	≤10
NF-233B	Unit 1 Air Handling Units Glycol Return Containment Isolation Inside	≤10
NF-234A	Unit 1 Air Handling Units Glycol Return Containment Isolation Outside	≤10
~~NI-9A#~~	~~Boron Injection Tank Line to Cold Legs~~	~~≤10~~
~~NI-10B#~~	~~Boron Injection Tank Line to Cold Legs~~	~~≤10~~
NI-47A	Accumulator N_2 Supply Outside Containment Isolation	≤10
NI-95A	Test Hdr Inside Containment Isolation	≤10
NI-96B	Test Hdr Outside Containment Isolation	≤10
NI-120B*	Safety Injection Pump to Accumulator Fill Line Isolation	≤10
NI-122B#	Hot Leg Injection Check 1NI124, 1NI128 Test Isolation	≤10
NI-154B#	Hot Leg Recirculation Check 1NI125, 1NI129 Test Isolation	≤10
NI-255B#	UHI Check Valve Test Line Isolation	≤10
NI-258A#	UHI Check Valve Test Line Isolation	≤10
NI-264B	UHI Check Valve Test Line Outside Containment Isolation	≤10

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Sec.)
1. Phase "A" Isolation (Continued)		
NV-11A	45 gpm Letdown Orifice Outlet - Containment Isolation	$\leq$10
NV-13A	75 gpm Letdown Orifice Outlet - Containment Isolation	$\leq$10
NV-10A	High Pressurizer Letdown Orifice Outlet - Containment Isolation	$\leq$10
NV-872A	Standby Makeup Pump to RCS seals	$\leq$10
~~NW-35A#~~	~~Containment Penetration Valve Injection Water System Containment Isolation Outside~~	X
~~NW-105B#~~	~~Containment Penetration Valve Injection Water System Containment Isolation Outside~~	X
RF-389B	Interior Fire Protection Containment Hose Rack Isolation Valve (Outside Containment)	$\leq$5
RF-447B	Reactor Building Sprinklers Containment Isolation Valve (Outside Containment)	$\leq$5
VB-83B	Breathing Air Unit 1 Containment Isolation	$\leq$10
VY-18B**	Containment H_2 Purge to Annulus Inside Containment Isolation	$\leq$10
VY-17A**	Containment H_2 Purge to Annulus Outside Containment Isolation	$\leq$10
VY-15B**	Containment H_2 Purge Blower Outlet, Containment Isolation (Outside)	$\leq$10
VI-312A	RB Isolation Valve for VI Supply to annulum Vent.	$\leq$10
VP-1B**	Upper Containment Purge Supply #1 Outside Isolation	$\leq$5
VP-2A**	Upper Containment Purge Supply #1 Inside Isolation	$\leq$5
VP-3B**	Upper Containment Purge Supply #2 Outside Isolation	$\leq$5
VP-4A**	Upper Containment Purge Supply #2 Inside Isolation	$\leq$5
VP-6B**	Lower Containment Purge Supply #1 Outside Isolation	$\leq$5
VP-7A**	Lower Containment Purge Supply #1 Inside Isolation	$\leq$5
VP-8B**	Lower Containment Purge Supply #2 Outside Isolation	$\leq$5
VP-9A**	Lower Containment Purge Supply #2 Inside Isolation	$\leq$5
VP-10A**	Upper Containment Purge Exhaust #1 Inside Isolation	$\leq$5

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TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Sec.)
2. Phase "B" Isolation (Continued)		
~~NS-12B#~~	~~Containment Spray Line (Outside)~~	~~≤10~~
~~NS-15B#~~	~~Containment Spray Line (Outside)~~	~~≤10~~
~~NS-20A#~~	~~Containment Spray Line (Outside)~~	~~≤10~~
~~NS-32A#~~	~~Containment Spray Line (Outside)~~	~~≤10~~
RN-437B	Supply to NC Pumps and LCVU Supply Outside Containment Isolation	≤60
RN-484A	Return from NC Pumps and LCVU Return Inside Containment Isolation	≤60
RN-487B	Return from NC Pumps and LCVU Return Outside Containment Isolation	≤60
RN-404B	Supply to Upper Containment Supply Ventilation Units Containment Isolation (Outside)	≤10
RN-429A	Return from Upper Containment Ventilation Units Containment Isolation (Inside)	≤10
RN-432B	Return from Upper Containment Ventilation Units Containment Isolation (Outside)	≤10
VI-77B	Instrument Air Containment Outside Isolation	≤10
SM-1 #	Main Steam 1D Isolation	≤5
SM-3 #	Main Steam 1C Isolation	≤5
SM-5 #	Main Steam 1B Isolation	≤5
SM-7 #	Main Steam 1A Isolation	≤5
SM-9 #	Main Steam 1D Isolation Bypass Ctrl.	≤5
SM-10 #	Main Steam 1C Isolation Bypass Ctrl.	≤5
SM-11 #	Main Steam 1B Isolation Bypass Ctrl.	≤5
SM-12 #	Main Steam 1A Isolation Bypass Ctrl.	≤5
SV-19 #	Main Steam 1A PORV	≤5
SV-13 #	Main Steam 1B PORV	≤5
SV-7 #	Main Steam 1C PORV	≤5
SV-1 #	Main Steam 1D PORV	≤5
WL-867A**	Containment Vent Unit Drains Inside Containment Isolation	≤10
WL-869B**	Containment Vent Unit Drains Outside Containment Isolation	≤10

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Sec.)
3. Manual		
NC-141	NC Pump H_2 Drain Tank Pump Discharge	N.A.
NC-142	NC Pump H_2 Drain Tank Pump Discharge	N.A.
~~NV-862#~~	~~Pzr. Aux. Spray Transient Line~~	~~N.A.~~
NI-3	Boron Injection Tank Line to Cold Legs	N.A.
FW-11	Refueling Water Pump Suction	N.A.
FW-13	Refueling Water Pump Suction	N.A.
CF-91#	Feedwater 1A	N.A.
CF-93#	Feedwater 1B	N.A.
CF-95#	Feedwater 1C	N.A.
CF-97#	Feedwater 1D	N.A.
CA-121#	Aux. Feedwater 1A	N.A.
BW-1#	Aux. Feedwater 1A	N.A.
CA-120#	Aux. Feedwater 1B	N.A.
BW-26#	Aux. Feedwater 1B	N.A.
CA-119#	Aux. Feedwater 1C	N.A.
BW-17#	Aux. Feedwater 1C	N.A.
CA-118#	Aux. Feedwater 1D	N.A.
BW-10#	Aux. Feedwater 1D	N.A.
SM-16#	Main Steam 1A	N.A.
SM-73#	Main Steam 1A	N.A.
SM-105#	Main Steam 1A	N.A.
SM-121#	Main Steam 1A	N.A.
SM-143#	Main Steam 1A	N.A.
SM-72#	Main Steam 1B	N.A.
SM-104#	Main Steam 1B	N.A.
SM-120#	Main Steam 1B	N.A.
SM-142#	Main Steam 1B	N.A.
SH-1#	Main Steam 1B	N.A.
SM-17#	Main Steam 1B	N.A.
SM-18#	Main Steam 1C	N.A.
SM-71#	Main Steam 1C	N.A.

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SURVEILLANCE REQUIREMENTS (Continued)

3) Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position; and

4) Verifying that each automatic valve in the flow path is in the fully open position whenever the Auxiliary Feedwater System is placed in automatic control or when above 10% RATED THERMAL POWER.

5) Verifying that the isolation valves in the auxiliary feedwater pump suction lines are open and that power is removed from the valve operators on valves CA-2, CA-7A, CA-9B, and CA-11A.

b. At least once per 18 months during shutdown by:

1) Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an Auxiliary Feedwater Actuation test signal, and

2) Verifying that each auxiliary feedwater pump starts as designed automatically upon receipt of an Auxiliary Feedwater Actuation test signal.

3) Verifying that the valve in the suction line of each auxiliary feedwater pump from the Nuclear Service Water System automatically actuates to its full open position within less than or equal to 15 → ~~10~~ seconds* on a Loss-of-Suction test signal.

4.7.1.2.2 An auxiliary feedwater flow path to each steam generator shall be demonstrated OPERABLE following each COLD SHUTDOWN of greater than 30 days prior to entering MODE 2 by verifying normal flow to each steam generator.

* Includes 5 second time delay.

3/4.7.6 CONTROL ROOM AREA VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6 Two independent Control Room Area Ventilation Systems shall be OPERABLE.

APPLICABILITY: ALL MODES

ACTION:

MODES 1, 2, 3 and 4:

With one Control Room Area Ventilation System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6:

a. With one Control Room Area Ventilation System inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE Control Room Area Ventilation System in the recirculation mode.

b. With both Control Room Area Ventilation Systems inoperable, or with the OPERABLE Control Room Area Ventilation System, required to be in the recirculation mode by ACTION a., not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.7.6 Each Control Room Area Ventilation System shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to ~~80~~°F; 90

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

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

1) Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% and uses the test procedure guidance in Regulatory Position C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revisions 2, March 1978, and the sytem flow rate is 6000 cfm ± 10%;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%; and

3) Verifying a system flow rate of 6000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

d. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%;

e. At least once per 18 months by:

1) Verifying that the pressure drop across the combined HEPA filters charcoal adsorber banks and moisture seperators is less than 8 inches Water Gauge while operating the system at a flow rate of 6000 cfm ± 10%;

2) Verifying that on a Loss-of-Offsite Power, or High Radition-Air Intake, or Smoke Density-High test signal, the system automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks;

3) Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge relative to the outside atmosphere during system operation;

4) Verifying that the heaters dissipate 25 ± 2.5 kW when tested in accordance with ANSI N510-1975; and

5) Verifying that on a High Chlorine/Toxic Gas test signal, the system automatically isolates the affected intake from outside air with recirculating flow through the HEPA filters and charcoal adsorbers banks within 10 seconds.

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3/4.7.7 AUXILIARY BUILDING VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 The Auxiliary Building Ventilation System shall be OPERABLE.

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

ACTION:

With the Auxiliary Building Ventilation System inoperable, restore the inoperable system to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.7 The Auxiliary Building Ventilation System shall be demonstrated OPERABLE:

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

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

1) Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 30,000 cfm ± 10%;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%; and

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3) Verifying a system flow rate of 30,000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%;

d. At least once per 18 months by:

and moisture seperators

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1) Verifying that the pressure drop across the combined HEPA filters ~~and~~ charcoal adsorber banks of less than ~~6~~ inches Water Gauge while operating the system at a flow rate of 30,000 cfm ± 10%, and

2) Verifying that the system starts on a Safety Injection or Loss-of-Offsite Power test signal, and directs its exhaust flow through the HEPA filters and charcoal adsorbers,

3) Verifying that the system maintains the ECCS pump room at a negative pressure of greater than or equal to 1/8 inch water gauge relative to the outside atmosphere,

4) Verifying that the filter cooling bypass valves can be manually opened, and

5) Verifying that the heaters dissipate 30 ± 3 kW when tested in accordance with ANSI N510-1975.

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% in accordance with ANSI N510-1975 for a DOP test aerosol while operating the system at a flow rate of 30,000 cfm ± 10%, and

f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% in accordance with ANSI N510-1975 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 30,000 cfm ± 10%.

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3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. Two physically independent circuits between the offsite transmission network and the Onsite Essential Auxiliary Power System, and

b. Two separate and independent diesel generators, each with:

1) A separate day tank containing a minimum volume of 518.5 gallons of fuel,

2) A separate Fuel Storage System containing a minimum volume of 82,056 gallons of fuel, and

3) A separate fuel transfer valve.

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

ACTION:

a. With either an offsite circuit or diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Specifications 4.8.1.1.1a. and 4.8.1.1.2a.4) within 1 hour and at least once per 8 hours thereafter; restore at least two offsite circuits and two diesel generators to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Specifications 4.8.1.1.1a. and 4.8.1.1.2a.4) within 1 hour and at least once per 8 hours thereafter; restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two offsite circuits and two diesel generators to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With one diesel generator inoperable in addition to ACTION a. or b. above, verify that:

1. All required systems, subsystems, trains, components and devices that depend on the remaining OPERABLE diesel generator as a source of emergency power are also OPERABLE, and

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* Not applicable prior to initial criticality.

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LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. One circuit between the offsite transmission network and the Onsite Essential Auxiliary Power System, and

b. One diesel generator with:

1) A day tank containing a minimum volume of 518.5 gallons of fuel,

2) A fuel storage system containing a minimum volume of 82,056 gallons of fuel, and

3) A fuel transfer valve.

APPLICABILITY: MODES 5* and 6.*

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel, or crane operation with loads over the fuel storage pool, and within 8 hours, depressurize and vent the Reactor Coolant System through a greater than or equal to 4.5 square inch vent. In addition, when in MODE 5 with the Reactor Coolant loops not filled, or in MODE 6 with the water level less than 23 feet above the reactor vessel flange, immediately initiate corrective action to restore the required sources to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the requirements of Specifications 4.8.1.1.1, 4.8.1.1.2 (except for Specification 4.8.1.1.2a.5), 4.8.1.1.3, and 4.8.1.1.4.

* Not applicable prior to initial criticality.

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3/4.8.3 ONSITE POWER DISTRIBUTION

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following A.C. electrical busses and inverters shall be OPERABLE and energized with tie breakers open between redundant busses:

a. 4160-Volt Essential Bus #1ETA,

b. 4160-Volt Essential Bus #1ETB,

c. 600-Volt Essential Bus #1ELXA,

d. 600-Volt Essential Bus #1ELXB,

e. 600-Volt Essential Bus #1ELXC,

f. 600-Volt Essential Bus #1ELXD,

g. 120-Volt A.C. Vital Bus # 1ERPA energized from Inverter # 1EIA connected to D.C. Channel 1,*

h. 120-Volt A.C. Vital Bus # 1ERPB energized from Inverter # 1EIB connected to D.C Channel 2,*

i. 120-Volt A.C. Vital Bus # 1ERPC energized from Inverter # 1EIC connected to D.C. Channel 3,*

j. 120-Volt A.C. Vital Bus # 1ERPD energized from Inverter # 1EID connected to D.C. Channel 4.*

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

ACTION:

a. With less than the above complement of A.C. busses OPERABLE and energized, restore the inoperable busses to OPERABLE and energized status ~~within~~ 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. within

b. With one inverter inoperable, energize the associated A.C. vital bus within 8 hours; restore the inoperable inverter to OPERABLE and energized status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

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

*An inverter may be disconnected from its D.C. source for up to 24 hours for the purpose of performing an equalizing charge on its associated battery bank provided: (1) its vital bus is OPERABLE and energized, and (2) the vital busses associated with the other battery banks are OPERABLE and energized. An inverter may be disconnected from its D.C. source for up to 72 hours provided the conditions of ACTION c. of Specification 3.8.2.1 are satisfied.

TABLE 3.8-1

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

DEVICE NUMBER & LOCATION	TRIP SETPOINT OR CONT. RATING (AMPERES)	RESPONSE TIME (SECONDS)	SYSTEM POWERED
1. 6900 VAC Swgr			
Primary Bkr RCP1A	5.0	42 + 4.2 @ 15A	Reactor Coolant Pump 1A
Backup Bkr 1TA-3	6.0	27 + 2.7 @ 18A	
Primary Bkr RCP1B	5.0	42 + 4.2 @ 15A	Reactor Coolant Pump 1B
Backup Bkr 1TB-3	6.0	27 + 2.7 @ 18A	
Primary BKR RCP1C	5.0	42 + 4.2 @ 15A	Reactor Coolant Pump 1C
Backup Bkr 1TC-3	6.0	27 + 2.7 @ 18A	
Primary BKR RCP1D	5.0	42 + 4.2 @ 15A	Reactor Coolant Pump 1D
Backup Bkr 1TD-3	6.0	27 + 2.7 @ 18A	
2. 600 VAC MCC			
1EMXC-F02C			
Primary Bkr	20	45 @ 60A	Cont Isol at 134 Deg
Backup Fuse	20	N..A.	Annulus Area Vlv 1VI312A
1EMXC-F03A			
Primary Bkr	20	45 @ 60A	NC Pump 1C Thermal Barrier Outlet
Backup Fuse	20	N.A.	Isol Vlv 1KC345A
1EMXC-F03B			
Primary Bkr	20	45 @ 60A	N_2 to Prt Cont Isol Inside
Backup Fuse	20	N.A.	Vlv 1NC54A

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

DEVICE NUMBER & LOCATION	TRIP SETPOINT OR CONT. RATING (AMPERES)	RESPONSE TIME (SECONDS)	SYSTEM POWERED
2. 600 VAC MCC (Continued)			
1EMXL-F10C			
Primary Bkr	20	45 @ 60A	Reactor Vessel Head Vent Vlv
Backup Fuse	20	N.A.	1NC252B
1EMXL-F11A			
Primary Bkr	125	110 @ 375A	Containment Air Return
Backup Fuse	125	N.A.	Fan Motor 1B
1EMXL-F11B			
Primary Bkr	125	110 @ 375A	Hydrogen Skimmer Fan Motor 1B
Backup Fuse	125	N.A.	
1EMXS-F01B			
Primary Bkr	20	45 @ 60A	NC Pumps Seal Rtn
Backup Fuse	20	N.A.	Inside Cont Isol Vlv 1NV89A
1EMXS-F02A			
Primary Bkr	20	45 @ 60A	ND Pump 1B Suction from NC
Backup Fuse	20	N.A.	Loop C Vlv 1ND37A
1EMXS-F02B			
Primary Bkr	20	45 @ 60A	Reactor Vessel Head Vent Vlv
Backup Fuse	20	N.A.	1NC250A
1EMXS-F03C			
Primary Bkr	20	45 @ 60A	ND Pump 1A Suction from NC
Backup Fuse	20	N.A.	Loop B Vlv 1ND2A

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

DEVICE NUMBER & LOCATION	TRIP SETPOINT OR CONT. RATING (AMPERES)	RESPONSE TIME (SECONDS)	SYSTEM POWERED
2. 600 VAC MCC (Continued)			
1MXZ-F07D			
Primary Bkr	30	45 @ 90A	Reactor Cavity Manipulator
Backup Fuse	30	N.A.	Crane No. R007 & R027
1MXZ-F08A			
Primary Bkr	20	45 @ 60A	Steam Generator Drain Pump
Backup Fuse	20	N.A.	Motor 1
1MXZ-F08C			
Primary Bkr	30	45 @ 90A	15 Ton Equipment Access Hatch
Backup Fuse	30	N.A.	Hoist Crane No. R009
1MXZ-F08D			
Primary Bkr	20	45 @ 60A	Control Rod Drive 2 Ton Jib
Backup Fuse	20	N.A.	Hoist Crane No. R017
1MXZ-F08E			
Primary Bkr	20	45 @ 60A	Reactor Side Fuel Handling
Backup Fuse	20	N.A.	Control Console
SMXG-F01C			
Primary Bkr	20	45 @ 60A	Standby Makeup Pump Drain Isol
Backup Fuse	20	N.A.	Vlv 1NV876
SMXG-F05C			
Primary Bkr	100	110 @ 300A	Pressurizer Heaters 28, 55 & 56
Backup Fuse	100	N.A.	
SMXG-F06A			
Primary Bkr	20	45 @ 60A	Standby Makeup Pump to Seal
Backup Fuse	20	N.A.	Water Line Isol Vlv 1NV877

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

DEVICE NUMBER & LOCATION	TRIP SETPOINT OR CONT. RATING (AMPERES)	RESPONSE TIME (SECONDS)	SYSTEM POWERED
2. 600 VAC MCC (Continued)			
1EMXC-F01B			
Primary Bkr	50	110 @ 150	Accumulator 1C Discharge
Backup Fuse	50	N.A.	Isol Vlv 1NI76A
1EMXC-F01C			
Primary Bkr	20	45 @ 60	Check Valve Test Header
Backup Fuse	20	N.A.	Cont Isol Vlv 1NI95A
1EMXC-F02A			
Primary Bkr	20	45 @ 60	Train A Alternate Power
Backup Fuse	20	N.A.	To ND LTDN Vlv 1ND1B
1EMXC-F02B			
Primary Bkr	20	45 @ 60	~~Safety Injection Pump 1B~~
Backup Fuse	20	N.A.	~~Suction Vlv~~ Hot Leg Inj Check Vlv Test Isol Vlv 1NI153A
3. 600 VAC Pressurizer Heater Power Panels			
PHP1A-F01A			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	1, 2, & 22

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

DEVICE NUMBER & LOCATION	TRIP SETPOINT OR CONT. RATING (AMPERES)	RESPONSE TIME (SECONDS)	SYSTEM POWERED
3. 600 VAC Pressurizer Heater Power Panels (Continued)			
PHP1A-F01B			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	5, 6, & 27
PHP1A-F01C			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	9, 10, & 32
PHP1A-F02C			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	11, 12, & 35
PHP1A-F02D			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	13, 14, & 37
PHP1A-F02E			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	17, 18, & 42
PHP1B-F01A			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	21, 47 & 48

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

DEVICE NUMBER & LOCATION	TRIP SETPOINT OR CONT. RATING (AMPERES)	RESPONSE TIME (SECONDS)	SYSTEM POWERED
3. 600 VAC Pressurizer Heater Power Panels (Continued)			
PHP1B-F01B			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	26, 53 & 54
PHP1B-F01C			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	31, 59 & 60
PHP1B-F02C			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	36, 65 & 66
PHP1B-F02D			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	41, 71 & 72
PHP1B-F02E			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	46, 77 & 78
PHP1C-F01A			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	7, 8 & 30

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PHP1C-F01B			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	19, 20 & 45
PHP1C-F01C			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	24, 51 & 52
PHP1C-F01D			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	29, 57 & 58
PHP1C-F02C			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	34, 63 & 64
PHP1C-F02D			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	39, 69 & 70
PHP1C-F02E			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	44, 75 & 76
PHP1D-F01A			
Primary Bkr	90	110 @ 270A	Pressurizer Heaters
Backup Fuse	90	N.A.	3, 4 & 25

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

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LIMITING CONDITION FOR OPERATION

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

a. The equipment hatch closed and held in place by a minimum of four bolts,

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

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

1) Closed by an isolation valve, blind flange, or manual valve, or

2) Exhausting through an OPERABLE Reactor Building Containment Purge System HEPA filters and charcoal adsorbers.

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

ACTION:

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

SURVEILLANCE REQUIREMENTS

4.9.4.1 Each of the above required containment building penetrations shall be determined to be either in its closed/isolated condition or exhausting through an OPERABLE Reactor Building Containment Purge System with the capability of being automatically isolated upon heater failure within 72 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment building by:

a. Verifying the penetrations are in their closed/isolated condition, or

b. Verifying the containment purge isolation valves close upon a High Relative Humidity test signal.

SURVEILLANCE REQUIREMENTS (Continued)

4.9.4.2 The Reactor Building Containment Purge System shall be demonstrated OPERABLE:

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

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

   1) Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% and uses the test procedures guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 28,000 cfm ± 10% (both exhaust fans operating);

   2) Verifying within 31 days after removal, that a laboratory analysis of a presentative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.5,2 Revision 2, March 1978, for a methyl iodide penetration of less than 6%; and

   3) Verifying a system flow rate of 28,000 cfm ± 10% (both exhaust fans operating) during system operation when tested in accordance with ANSI N510-1975.

c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 6%;

d. At least once per 18 months by:

   1) Verifying that the pressure drop across the combined HEPA filters ~~and~~ charcoal adsorber banks and moisture seperators is less than ~~[illegible]~~ 8 inches Water Gauge while operating the system at a flow rate of 28,000 cfm ± 10% (both exhaust fans operating);

   2) Verifying that the filter cooling bypass valves can be opened by operator action; and

SURVEILLANCE REQUIREMENTS (Continued)

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Positions C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%; and

3) Verifying a system flow rate of 18,000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

c. After every 720 hours of charcoal adsorber operation by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%.

d. At least once per 18 months by:

1) Verifying that the pressure drop across the combined HEPA filters ~~and~~ charcoal adsorber banks and moisture seperators is less than ~~(6)~~ 8 inches Water Gauge while operating the system at a flow rate of 18,000 cfm ± 10%.

2) Verifying that the system maintains the spent fuel storage pool area at a negative pressure of greater than or equal to ~~1/8~~ 1/4 inch Water Gauge relative to the outside amosphere during system operation,

3) Verifying that the filter cooling bypass valves can be manually opened, and

4) Verifying that the heaters dissipate 80 ± 8 kW when tested in accordance with ANSI N510-1975.

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% in accordance with ANSI N510-1975 for a DOP test aerosol while operating the system at a flow rate of 18,000 cfm ± 10%; and

f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% in accordance with ANSI N510-1975 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 18,000 cfm ± 10%.

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BORATION SYSTEMS (Continued)

MARGIN from expected operating conditions of 1.3% Δk/k after xenon decay and cooldown to 200°F. The maximum expected boration capability requirement occurs at EOL from full power equilibrium xenon conditions and requires 16,321 gallons of 7000 ppm borated water from the boric acid storage tanks or 75,000 gallons of 2000 ppm borated water from the refueling water storage tank.

With the coolant temperature below 200°F, one Boron Injection System is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting CORE ALTERATIONS and positive reactivity changes in the event the single Boron Injection System becomes inoperable.

The limitation for a maximum of one centrifugal charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps except the required OPERABLE pump to be inoperable below 300°F provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV.

The boron capability required below 200°F is sufficient to provide a SHUTDOWN MARGIN of 1% Δk/k after xenon decay and cooldown from 200°F to 140°F. This condition requires either 906 gallons of 7000 ppm borated water from the boric acid storage tanks or 3170 gallons of 2000 ppm borated water from the refueling water storage tank.

The contained water volume limits include allowance for water not available because of discharge line location and other physical characteristics.

The limits on contained water volume and boron concentration of the refueling water storage tank also ensure a pH value of between 8.5 and 10.5 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

The OPERABILITY of one Boron Injection System during REFUELING ensures that this system is available for reactivity control while in MODE 6.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

The specifications of this section ensure that: (1) acceptable power distribution limits are maintained, (2) the minimum SHUTDOWN MARGIN is maintained, and (3) the potential effects of rod misalignment on associated accident analyses are limited. OPERABILITY of the control rod position indicators is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits. Verification that the Digital Rod Position Indicator agrees with the demanded position within ± 12 steps at 24, 48, 120 and 228 steps withdrawn for the Control Banks and 18, 210 and 228 steps withdrawn for the Shutdown Banks provides assurances that the Digital Rod Position Indicator is operating correctly over the full range of indication. ~~Since the Digital Rod Position System does not indicate the actual shutdown rod position between 18 steps and 210 steps, only points in the indicated ranges are picked for verification of agreement with demanded position.~~

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HEAT FLUX HOT CHANNEL FACTOR, and RCS FLOW RATE AND NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR (Continued)

When Reactor Coolant System flow rate and $F^N_{\Delta H}$ are measured, no additional allowances are necessary prior to comparison with the limits of Figure 3.2-3. Measurement errors of ~~[illegible]~~ 1.9% for ~~RCS~~ Reactor Coolant System total flow rate and 4% for $F^N_{\Delta H}$ have been allowed for in determination of the design DNBR value.

The measurement error for Reactor Coolant System total flow rate is based upon performing a precision heat balance and using the result to calibrate the Reactor Coolant System flow rate indicators. Potential fouling of the feedwater venturi which might not be detected could bias the result from the precision heat balance in a nonconservative manner. Therefore, a penalty of 0.1% for undetected fouling of the feedwater venturi is included in Figure 3.2-3. Any fouling which might bias the Reactor Coolant System flow rate measurement greater than 0.1% can be detected by monitoring and trending various plant performance parameters. If detected, action shall be taken before performing subsequent precision heat balance measurements, i.e., either the effect of the fouling shall be quantified and compensated for in the Reactor Coolant System flow rate measurement or the venturi shall be cleaned to eliminate the fouling.

The 12-hour periodic surveillance of indicated Reactor Coolant System flow is sufficient to detect only flow degradation which could lead to operation outside the acceptable region of operation shown on Figure 3.2-3.

3/4.2.4 QUADRANT POWER TILT RATIO

The QUADRANT POWER TILT RATIO limit assures that the radial power distribution satisfies the design values used in the power capability analysis. Radial power distribution measurements are made during STARTUP testing and periodically during power operation.

The limit of 1.02, at which ... ction is required, provides DNB and linear heat generation rate pr... h x-y plane power tilts. A limit of 1.02 was selected to prov... ance for the uncertainty associated with the indicated power tilt.

The 2-hour time allowance for ... a tilt condition greater than 1.02 but less than 1.09 is p... identification and correction of a dropped or misaligned control ... In the event such action does not correct the tilt, the margin for unce... ainty on F_Q is reinstated by reducing the maximum allowed power by 3% for each percent of tilt in excess of 1.

For purposes of monitoring QUADRANT POWER TILT RATIO when one excore detector is inoperable, the moveable incore detectors are used to confirm that the normalized symmetric power distribution is consistent with the QUADRANT POWER TILT RATIO. The incore detector monitoring is done with a full incore

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QUADRANT POWER TILT RATIO (Continued)

flux map or two sets of four symmetric thimbles. The two sets of four symmetric thimbles is a unique set of eight detector locations. The~~se~~ normal locations are C-8, E-5, E-11, H-3, H-13, L-5, L-11, N-8. Alternate locations are available if any normal locations are unavailable.

3/4.2.5 DNB PARAMETERS

The limits on the DNB-related parameters assure that each of the parameters are maintained within the normal steady-state envelope of operation assumed in the transient and accident analyses. The limits are consistent with the initial FSAR assumptions and have been analytically demonstrated adequate to maintain a design limit DNBR throughout each analyzed transient.

The 12-hour periodic surveillance of these parameters through instrument readout is sufficient to ensure that the parameters are restored within their limits following load changes and other expected transient operation. Measurement uncertainties must be accounted for during the periodic surveillance.

3/4.4.9 PRESSURE/TEMPERATURE LIMITS

The temperature and pressure changes during heatup and cooldown are limited to be consistent with the requirements given in the ASME Boiler and Pressure Vessel Code, Section III, Appendix G:

1. The reactor coolant temperature and pressure and system heatup and cooldown rates (with the exception of the pressurizer) shall be limited in accordance with Figures 3.4-2 and 3.4-3 for the service period specified thereon:

    a. Allowable combinations of pressure and temperature for specific temperature change rates are below and to the right of the limit lines shown. Limit lines for cooldown rates between those presented may be obtained by interpolation; and

    b. Figures 3.4-2 and 3.4-3 define limits to assure prevention of non-ductile failure only. For normal operation, other inherent plant characteristics, e.g., pump heat addition and pressurizer heater capacity, may limit the heatup and cooldown rates that can be achieved over certain pressure-temperature ranges.

2. These limit lines shall be calculated periodically using methods provided below,

3. The secondary side of the steam generator must not be pressurized above 200 psig if the temperature of the steam generator is below 70°F,

4. The pressurizer heatup and cooldown rates shall not exceed 100°F/h and 200°F/h, respectively, and

5. System preservice hydrotests and in-service leak and hydrotests shall be performed at pressures in accordance with the requirements of ASME Boiler and Pressure Vessel Code, Section XI.

The fracture toughness properties of the vessel are determined in accordance with the 1971 Winter ~~1970 Summer~~ Addenda to Section III of the ASME Boiler and Pressure Vessel Code and the NRC Branch Technical Position MTEB 5-2, ~~Standard Review Plan, ASTM E185-73~~, and in accordance with additional reactor vessel requirements. These properties are then evaluated in accordance with Appendix G of the 1971 Winter Addenda to Section III of the ASME Boiler and Pressure Vessel Code.

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PRESSURE/TEMPERATURE LIMITS (Continued)

Although the pressurizer operates in temperature ranges above those for which there is reason for concern of nonductile failure, operating limits are provided to assure compatibility of operation with the fatigue analysis performed in accordance with the ASME Code requirements.

The OPERABILITY of two PORVs or a Reactor Coolant System vent opening of at least 4.5 square inches ensures that the Reactor Coolant System will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the cold legs are less than or equal to 300°F. Either PORV has adequate relieving capability to protect the Reactor Coolant System from overpressurization when the transient is limited to either: (1) the start of an idle reactor coolant pump with the secondary water temperature of the steam generator less than or equal to 50°F above the cold leg temperatures, or (2) the start of a Safety Injection pump and its injection into a water solid Reactor Coolant System.

3/4.4.10 STRUCTURAL INTEGRITY

The inservice inspection and testing programs for ASME Code Class 1, 2, and 3 components ensure that the structural integrity and operational readiness of these components will be maintained at an acceptable level throughout the life of the plant. These programs are in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g) except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i).

Components of the Reactor Coolant System were designed to provide access to permit inservice inspections in accordance with Section XI of the ASME Boiler and Pressure Vessel Code ~~, 1971 Edition and Addenda through Winter 1972.~~ and applicable Addenda as required by 10 CFR 50.55a(g) except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i).

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STANDBY NUCLEAR SERVICE WATER POND (Continued)

The limitations on minimum water level and maximum temperature are based on providing a 30-day cooling water supply to safety-related equipment without exceeding its design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants," March 1974.

3/4.7.6 CONTROL ROOM AREA VENTILATION SYSTEM

The OPERABILITY of the Control Room Area Ventilation System ensures that: (1) the ambient air temperature does not exceed the allowable temperature for continuous-duty rating for the equipment and instrumentation cooled by this system, and (2) the control room will remain habitable for operations personnel during and following all credible accident conditions. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rems or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criteria 19 of Appendix A, 10 CFR Part 50. ANSI N510-1975 will be used as a procedural guide for surveillance testing.

3/4.7.7 AUXILIARY BUILDING FILTERED VENTILATION EXHAUST SYSTEM

The OPERABILITY of the Auxiliary Building Filtered Ventilation Exhaust System ensures that radioactive materials leaking from the ECCS equipment within the auxiliary building following a LOCA are filtered prior to reaching the environment. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses. ANSI N510-1975 will be used as a procedural guide for surveillance testing.

3/4.7.8 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads. Snubbers excluded from this inspection program are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed, would have no adverse effect on any safety-related system.